# INSTRUCTION BOOK

# For

# RADIO SET AN/VRC-24(XC-2)

MANUFACTURED BY

COLLINS RADIO COMPANY

ORDER NO. 11571-PH-52-91(4208)

15 JANUARY 1957

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# WARNING

## HIGH VOLTAGE

**is used in the operation**
**of this equipment**

# DEATH ON CONTACT

**may result if operating personnel fail**
**to observe safety precautions**

BE CAREFUL NOT TO CONTACT HIGH-VOLTAGE CONNECTIONS OR ANY POWER CONNECTIONS WHEN USING THIS EQUIPMENT. TURN OFF THE POWER AND DISCHARGE ALL HIGH-VOLTAGE CAPACITORS BEFORE MAKING ANY TEST CONNECTIONS OR DOING ANY WORK INSIDE THE EQUIPMENT.

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# ARTIFICIAL RESPIRATION

## GENERAL PRINCIPLES

1. Seconds count! Begin at once! Don't take time to move the victim unless you must. Don't loosen clothes, apply stimulants or try to warm the victim. Start resuscitation! Get air in the lungs! You may save a life!

2. Place the victim's body in a prone position, so that any fluids will drain from the respiratory passages. The head should be extended and turned sideward *never flexed forward;* the chin shouldn't sag, since obstruction of the respiratory passages may occur.

3. Remove any froth or debris from the mouth with your fingers. Draw the victim's tongue forward.

4. Begin artificial respiration. Continue it rhythmically and without any interruption until natural breathing starts or the victim is pronounced dead. Try to keep the rhythm smooth. Split-second timing is not absolutely essential.

5. When the victim starts breathing, or when additional help is available loosen the clothing; remove it, if it's wet; keep the victim warm. Shock should receive adequate attention. Don't interrupt the rhythmical artificial technique for these measures. Do them only when you have help or when natural breathing has started.

6. When the victim is breathing, adjust your timing to assist him. Don't fight his efforts to breathe. Synchronize your efforts with his. After resuscitation, keep him lying down until seen by a physician or until recovery seems certain.

7. Don't wait for mechanical resuscitation! If an approved model is available, use it, but, since mechanical resuscitators are only slightly more effective than properly performed "push-pull" manual technique, *never* delay manual resuscitation for it.

## BACK-PRESSURE ARM LIFT METHOD

1. *Position of Victim.* Place the victim in the prone (face-down) position. Bend his elbows; place one hand upon the other. Turn his face to one side, placing his cheek upon his hands.

2. *Position of Operator.* Kneel on your left or right knee, at the victim's head, facing him. Your knee should be at the side of the victim's head close to his forearm, your foot should be near his elbow. Kneel on both knees if you find it more comfortable, with one knee on each side of the head. Place your hands on the flat of the victim's back so that their heels are just below the lower tip of his shoulder blades. With the tip of your thumbs touching spread your fingers downward and outward. (See A)

3. *Compression Phase.* Rock forward until your arms are approximately vertical and allow the weight of the upper part of your body to exert a slow, steady, even, downward pressure upon your hands. This forces air out of the lungs. Keep your elbows straight and press almost directly downward on the back. (See B)

4. *Expansion Phase.* Release the pressure, avoid any finish thrust, and commence to rock backward slowly. Place your arms upon the victim's arms just above the elbows, and draw his arms upward and toward you. Apply just enough lift to feel resistance and tension at the victim's shoulders.

Don't bend your elbows. As you rock backward, the victim's arms will be drawn toward you. (The arm lift expands the chest by pulling on the chest muscles, arching the back and relieving the weight on the chest.) Drop the arms gently to the ground or floor. This completes the cycle. (See C and D). Now, repeat the cycle.

5. *Cycle Timing and Rhythm.* Repeat the cycle 10 to 12 times per minute. Use a steady uniform rate of Press, Release, Lift, Release. Longer counts of about equal length should be given to the "Press" and "Lift" steps of the compression and expansion phases. Make the "Release" periods of minimum duration.

6. *Changing Position or Operator.*

(*a*) Remember that you can use either or both knees or can shift knees during the procedure, provided you don't break the rhythm. Observe how you rock forward with the back-pressure and backward with the arm-lift. The rocking motion helps to sustain the rhythm and adds to the ease of operation.

(*b*) If you tire and another person is available, you can "take turns." Be careful not to break the rhythm in changing. Move to one side and let your replacement come in from the other side. Your replacement begins the "Press-Release" after one of the "Lift-Release" phases, as you move away.

**A** Position of operator and victim **B** Compression phase **C** Expansion phase (arm lift) **D** Expansion phase (arm release)

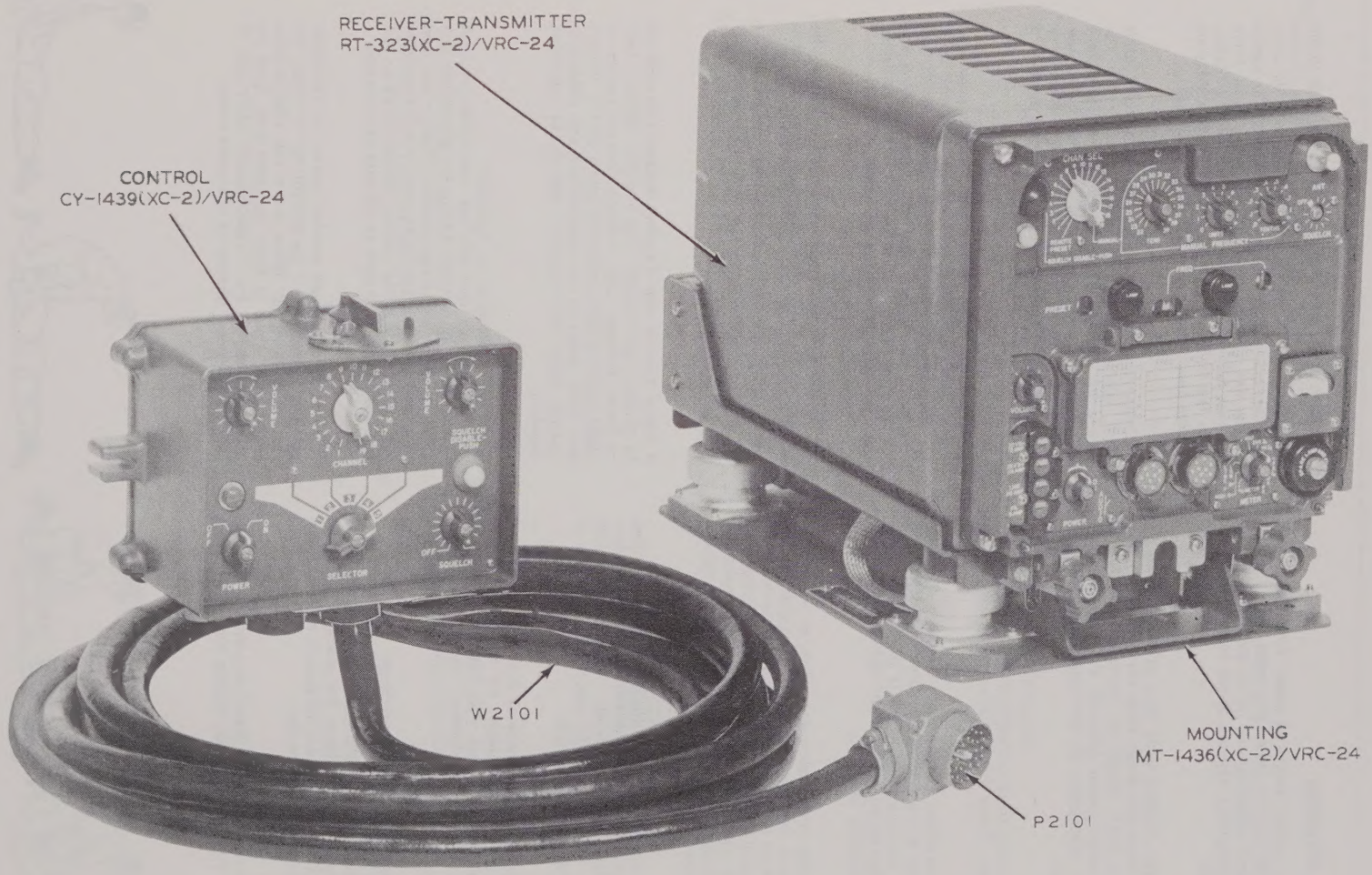



Figure 1. Radio Set AN/VRC-24(XC-2)

# CHAPTER 1

# INTRODUCTION

## Section I. GENERAL

### 1. Scope

This instruction book contains instructions for the installation, operation, maintenance, and repair of Radio Set AN/VRC-24(XC-2). Radio Set AN/VRC-24(XC-2) includes Receiver-Transmitter RT-323(XC-2)/VRC-24, Mounting Base MT-1436(XC-2)/VRC-24 and Control C-1439(XC-2)/VRC-24.

### 2. Forms and Records

The following forms will be used for reporting unsatisfactory conditions of Army materiel and equipment and when performing preventive maintenance:

a. DD Form 6, Report of Damaged or Improper Shipment, will be filled out and forwarded as prescribed in SR 745-45 (Army), Navy Shipping Guide, Article 1850-4 (Navy) and AFR 71-4 (Air Force).

b. DA Form 468, Unsatisfactory Equipment Report, will be filled out and forwarded to the Office of the Chief Signal Officer as prescribed in SR 700-45-5.

c. AF Form 54, Unsatisfactory Report, will be filled out and forwarded to Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio, as prescribed in SR 700-45-5 and AFR 65-26.

d. DA Form 11-238, Operator First Echelon Maintenance Check List for Signal Corps Equipment will be prepared in accordance with instructions on the back of the form.

e. DA Form 11-239, Second and Third Echelon Maintenance Check List for Signal Corps Equipment will be prepared in accordance with instructions on the back of the form.

f. Use other forms and records as authorized.

## Section II. DESCRIPTION AND DATA

### 3. Purpose and Use

a. Radio Set AN/VRC-24(XC-2) is a vehicular radio communication set which provides transmission and reception of amplitude modulated radiotelephone signals within the frequency range of 225.0 to 399.9 mc (megacycles). There are 1750 crystal controlled, channel frequencies which cover the frequency range in 0.1 mc steps. Nineteen channel frequencies can be preset for automatic selection either from the front panel or from a remote control station. Three manually operated switches provide manual frequency selection from the front panel.

b. Radio Set AN/VRC-24(XC-2) consists of Receiver-Transmitter RT-323(XC-2)/VRC-24, Mounting Base MT-1436(XC-2)/VRC-24, Control C-1439(XC-2)/VRC-24 and an Ac-Dc Conversion Kit. The Ac-Dc Conversion Kit is described in Chapter 5 Auxiliary Equipment. The set provides voice communication for ground to air liaison. Interphone circuits in the set provide intercommunication between the remote station and the receiver-transmitter.

4. Technical Characteristics

a. General.

| | |
|---|---|
| Frequency range | 225.0 mc to 399.9 mc. |
| Number of channels | 1750. |
| Channel spacing | 100 kc per channel. |
| Frequency stability | Within 20 kc of nominal channel frequency over ambient temperature range of -55°C to +65°C. |
| Number of crystals | 35. |
| Channel selection time | 5 seconds maximum |
| Time required to preset single channel | 10 seconds (approximately). |
| Number of preset channels | 19. |
| Automatic channel selection | Rotary switch (either from front panel or the remote control unit). |
| Manual channel selection | Available from panel. |
| Local preset channel and frequency indication | Both read through transparent windows in front panel. Channel is also indicated by switch position. |
| Remote preset channel indication | Switch position. |
| Performance monitoring facilities | Panel meter with 10-position switch. |
| Power requirements | Receive: 26.4 vdc nominal (22-30 vdc) at 9.4 amperes, 14.2 amperes when frequency selector is running.<br>Transmit: 26.4 vdc nominal (22-30 vdc) at 14 amperes full modulation.<br>Maximum starting 150 amperes. |
| Power source | Vehicular 24-volt battery. |
| Internal power supply | Dynamotor. |
| Weight | Less mounting base - approximately 50 lb.<br>With mounting base - approximately 66 lb. |
| Size | Less mounting base - 15-1/2 in. long, 11-3/4 in. high, 9-15/16 in. wide.<br>With mounting base - 16-3/8 in. long, 12-3/32 in. high, 10-5/8 in. wide. |
| Temperature | Operating -55°C to +65°C.<br>Storage -70°C to +70°C. |
| Number of tubes | 28. |
| Number of tube types | 6. |

b. Transmitter.

| | |
|---|---|
| Power Output | 15 watts minimum into 52 ohms resistive load (all service conditions). |
| Modulation | High level amplitude modulation. |
| Microphones | Carbon type M-29/U (0.1 volts). |
| Microphone impedance | 150 ohms nominal. |
| Fidelity | Capable of 85% modulation from 250 to 6000 cps. |
| Audio distortion | Less than 10%. |
| Sidetone | 250 to 6000 cps from receive audio output across 600 ohms. |
| Rf power output and vswr | Indicated on meter on front panel. |
| Duty cycle | Continuous transmission for periods up to one hour with 85% modulation at 65°C. Continuous transmission at lower temperatures. |

c. Receiver Characteristics.

| | |
|---|---|
| Receiver type | Triple-conversion superheterodyne with automatic tuning, automatic noise limiting, and choice of carrier operated or signal-plus-noise/noise ratio squelch. |
| Sensitivity | 6 microvolts or less (in series with 50 ohms) for a 10 db signal-plus-noise/noise ratio. |
| Selectivity | Attenuation — Bandwidth<br>6 db — 90 kc min<br>60 db — 156 kc max |
| If. amplifiers | 1st if. amplifier (variable) - 20.0 to 29.9 mc.<br>2d if. amplifier (variable) - 3.0 to 3.9 mc.<br>3d if. amplifier (fixed) - 500 kc. |
| If. rejection | More than 100 db attenuation. |
| Image responses | More than 70 db attenuation. |
| Squelch | Choice of carrier operated or signal-plus-noise/noise operated squelch circuits. |
| Noise suppression | Series diode noise limiter. Clips noise peaks exceeding a level sufficient to produce 45% modulation of the carrier. |
| Audio fidelity | Within 2 db from 250 to 3000 cps. |
| Audio outputs | Speaker output - 1 watt, 600 ohms (receiver and interphone with muted sidetone). |

| | |
|---|---|
| Audio outputs (cont) . . . . . | Headset - 100 milliwatts, 600 ohms (receiver, interphone, and sidetone).<br>Remote output - 100 milliwatts, 100 milliwatts per 600 ohm headset (one to seven headsets) (receiver, interphone and sidetone).<br>Retransmission output - 50 milliwatts, 600 ohms (receiver, sidetone, interphone).<br>Remote Low Level - 50 milliwatts (receiver, interphone and sidetone). |
| Audio distortion . . . . . | 10% maximum. |

5. Packaging Data

For domestic shipment Radio Set AN/VRC-24(XC-2) is packaged in two corrugated fiberboard cartons. One large carton contains Receiver-Transmitter RT-323(XC-2)/VRC-24 which is sealed in a sheet of heavy paper and padded with air-cell padding at the bottom and four sides. A plywood pallet over a pad of Kimpak protects the front panel of the set. The carton is sealed with tape. A smaller carton contains Mounting MT-1436(XC-2)/VRC-24 and Control C-1439(XC-2)/VRC-24. The mounting and the control units are individually padded with Kimpak, sealed in heavy paper, and packed in inner cartons. The package containing the mounting is at the bottom of the outer carton. A dividing pad separates the carton containing the mounting from the carton containing the control. Voids in the outer carton are filled with Kimpak and the carton is sealed with tape. A protective envelope fastened to the top of one of the two cartons contains the packing list. The third carton contains the Ac-Dc Conversion kit. This package is described in Chapter 5.

6. Table of Components

| Component | Required Number | Height (in.) | Width (in.) | Length (in.) | Unit Weight (lb) |
|---|---|---|---|---|---|
| Receiver-Transmitter RT-323(XC-2)/VRC-24 | 1 | 11-3/4 | 9-15/16 | 15-1/2 | 57 |
| Mounting MT-1436(XC-2)/VRC-24 | 1 | 5-3/4 | 10-5/8 | 16-3/8 | 15 |
| Control C-1439(XC-2)/VRC-24 | 1 | 6-7/8 | 9-3/8 | 4 | 5.2 |
| Power cable | 1 | | | 144 | |
| Interconnecting cable | 1 | | | 240 | |
| Ac-Dc Conversion Kit | 1 | | | | |
| Total | | | | | 77.2 |

Note. This list is for general information only. See appropriate supply publications for information pertaining to requisition of spare parts.

7. Description of Radio Set AN/VRC-24(XC-2)

(fig. 1)

Radio Set AN/VRC-24(XC-2) includes a receiver-transmitter, a mounting base, a control unit and an Ac-Dc Conversion Kit which is described in Chapter 5. Receiver-Transmitter RT-323(XC-2)/VRC-24 is secured to Mounting MT-1436(XC-2)/VRC-24 which normally is bolted to a vehicular mounting surface. From the mounting, connections are made to the vehicular battery, to the receiver-transmitter and to Control C-1439(XC-2)/VRC-24. Connections to the antenna are directly from the front panel of the receiver-transmitter.

8. Description of Receiver-Transmitter RT-323(XC-2)/VRC-24

(figs. 2 and 3)

a. Receiver-Transmitter RT-323(XC-2)/VRC-24 is a 28-tube transceiver of ruggedized construction. The receiver-transmitter provides for transmission and reception of amplitude modulated radiotelephone signals for air to ground communications. The receiver-transmitter case is immersion-proof. Four slotted head, captive screws fasten the case to the remainder of the receiver-transmitter.

b. All operating controls are on the front panel (fig. 12), which is recessed so that no control extends beyond the raised edges of the panel. The squelch indicator light is located in the upper left hand corner of the front panel. A push button switch for disabling the squelch circuit is located immediately below the squelch light. The channel selector, the ten megacycle MANUAL FREQUENCY selector, the one megacycle MANUAL FREQUENCY selector, and the tenth megacycle MANUAL FREQUENCY selector switches are located across the top of the front panel to the right of the squelch indicator light. The antenna connector is located in the upper right hand corner of the front panel and immediately below it is the SQUELCH sensitivity control. Across the front panel below the frequency control switches are the PRESET and FREQ indicators and dial lamps. An access door below these windows provides access to the channel memory drum for presetting channel frequencies. The receiver VOLUME control and fuses are to the left of the memory drum access door and the meter and METER switch along with the SPARE LAMP AND FUSE holder are to the right. Two AUDIO receptacles (for audio and control lines) are directly below the memory drum access door. The POWER ON/OFF switch is located to the left of the AUDIO receptacles.

c. Nine removable subchassis contain the circuitry of the receiver-transmitter. Complete alignment and adjustment can be made with the main frame removed from the case but without removing any subchassis from the main frame.

Figure 2. Receiver-Transmitter RT-323(XC-2)/VRC-24

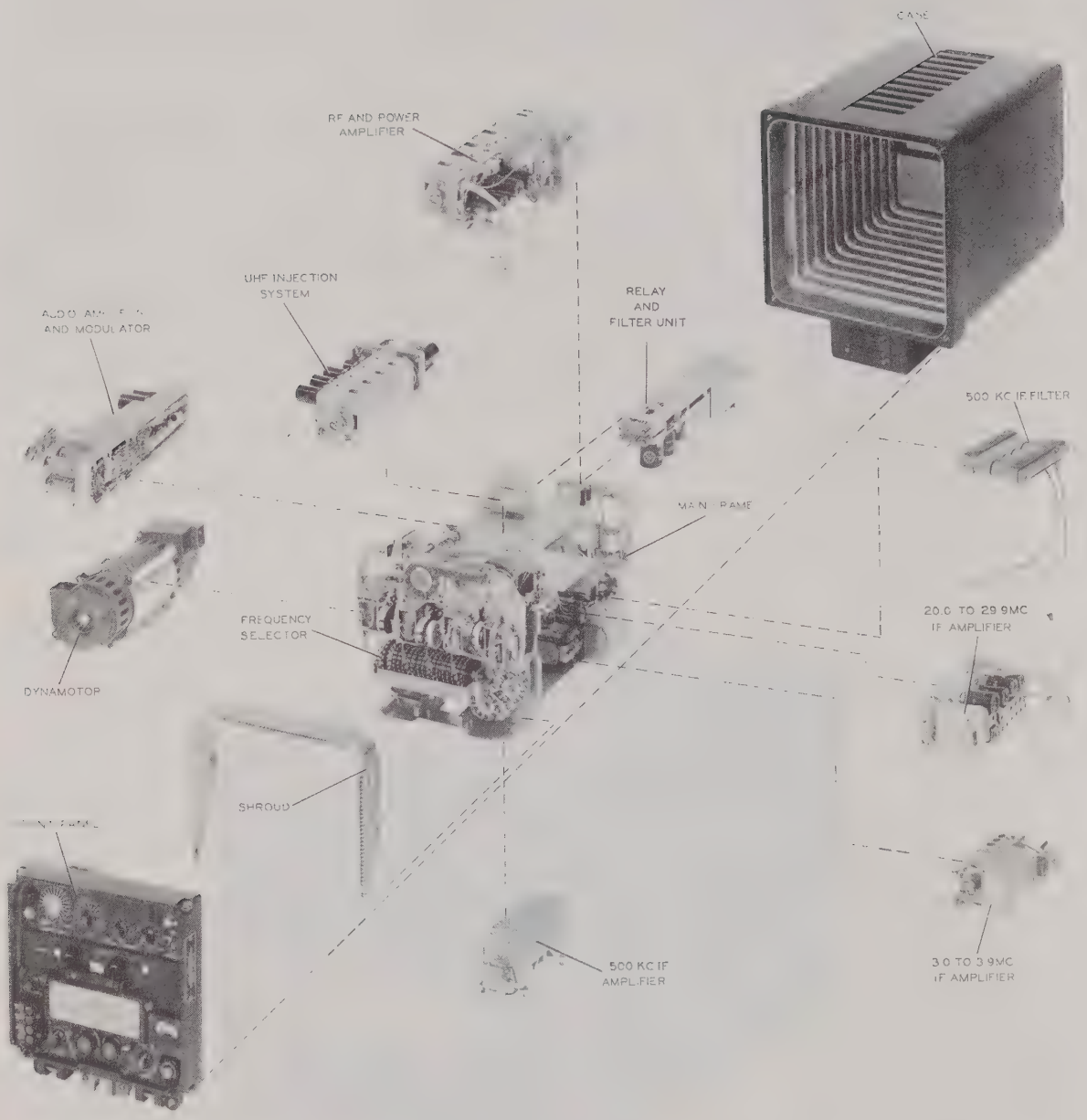



**Figure 3. Receiver-Transmitter RT-323(XC-2)/VRC-24, exploded view**

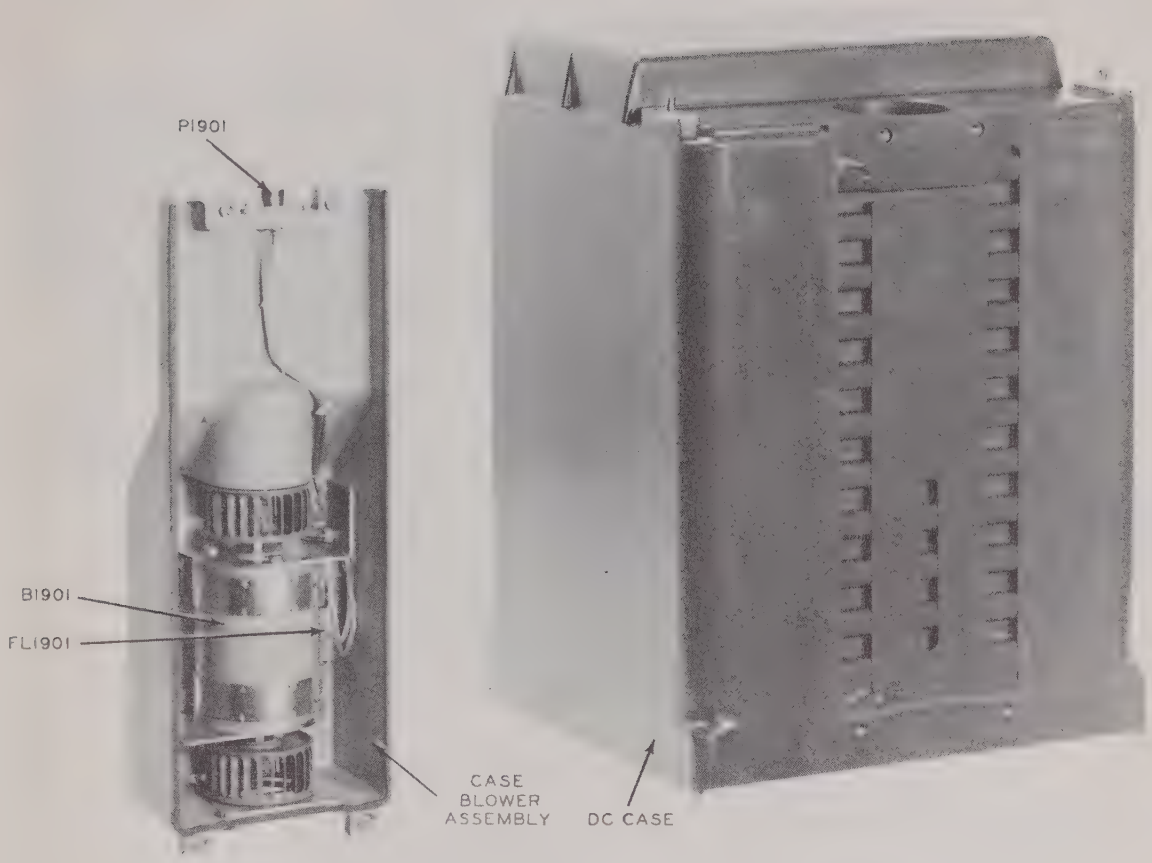



Figure 4. Dc Case, bottom view, blower removed

d. A rotary switch provides automatic frequency selection of nineteen preset channel frequencies. Either the local station or the remote station will control the preset channel selection. Autopositioners*, electro-mechanical shaft positioning devices, tune the receiver-transmitter. A twenty-channel memory drum stores the necessary preset information to control the automatic frequency selection. The twentieth position sets up the switching for manual frequency selection. Three switches provide manual control for tuning the receiver-transmitter to any of the 1750 available channel frequencies when the preset channel selector switch is in the MANUAL position.

e. Most electrical connections to the receiver-transmitter are made at the rear plug. Af output, speaker, af input, af interphone input, and radio control line connections are made at each of the two AUDIO jacks on the front panel. The antenna connection is made at the ANT. jack on the front panel.

f. The receiver-transmitter is housed in a heat exchanger case (fig. 4). A blower mounted on the bottom of the case circulates air through channels surrounding the receiver-transmitter. The air picks up heat from inside the case by conduction through the channel walls and carries it out through an opening in the top of the case.

*Registered in U. S. Patent Office

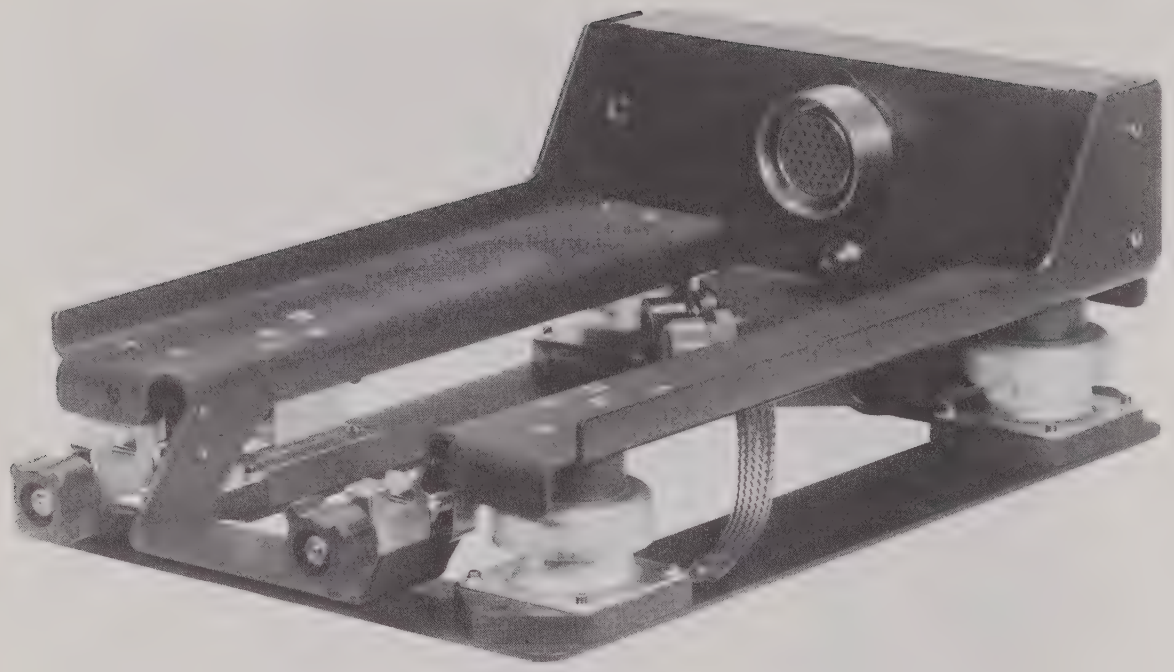


Figure 5. Mounting MT-1436(XC-2)/VRC-24

9. Description of Mounting MT-1436(XC-2)/VRC-24 (fig. 5)

The mounting consists of two steel platforms (upper and lower) separated by four shockmounts. The lower platform is drilled to accommodate bolts for fastening the mounting rigidly to a vehicle. A junction box of cast aluminum with a removable waterproof cover bolts to the rear of the upper platform. The junction box contains the jack which receives the rear plug of the receiver-transmitter. The junction box also contains two terminal strips for making connections between the rear plug and the power and interconnecting cables. Three glands provide waterproof entrances for the cables. Clamps at the front of the mounting engage pins in the lower edge of the receiver-transmitter front panel. The thumbscrews which fasten the clamps also serve as injector-ejector mechanisms. Clockwise rotation of the thumbscrews moves the receiver-transmitter forward injecting the rear plug into the jack on the mounting. Counterclockwise rotation of the thumbscrews ejects the rear plug on the receiver-transmitter from the jack on the mounting. This facilitates removal of the receiver-transmitter from the mounting.

10. Description of Control C-1439(XC-2)/VRC-24 (fig. 6)

Control C-1439(XC-2)/VRC-24 provides control of Receiver-Transmitter RT-323(XC-2)/VRC-24 from a remote point. The RADIO-INT-RADIO switch on the top of the unit controls the mode of operation. Two VOLUME controls are located in the upper left and upper right hand corners of the front of the unit. The CHANNEL selector switch is located between the two VOLUME controls. The POWER ON/OFF switch is in the lower left hand corner and immediately above it is the power on pilot light. The SQUELCH sensitivity control is in the lower right hand corner and the SQUELCH DISABLE-PUSH switch is immediately above it. The SQUELCH DISABLE-PUSH switch button is also the squelch indicating light. The SELECTOR switch in the lower center of the front of the unit has four blank positions which can be wired to connect the control to other systems. Position 3 connects the control into the AN/VRC-24 system. Two audio jacks providing

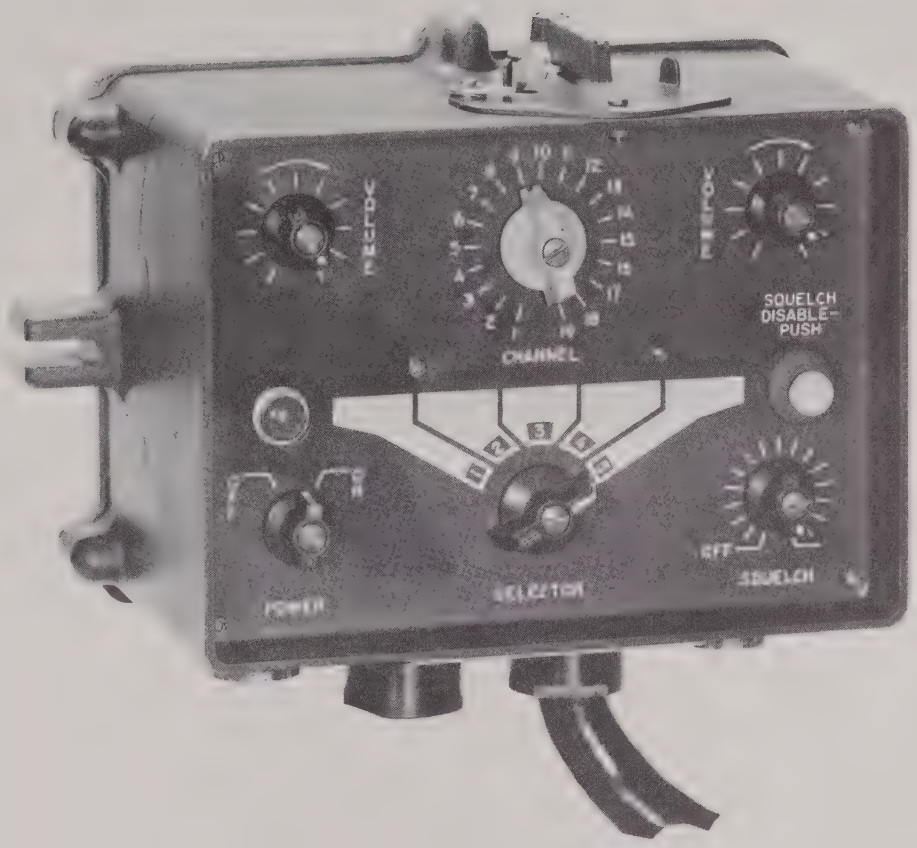



Figure 6. Control C-1439(XC-2)/VRC-24

connections for microphone, control and headset lines are located on the bottom of the unit and between them are two waterproof glands for the interconnecting cables.

11. Description of Cables

Two types of cables are required for operation of Radio Set AN/VRC-24. Subparagraph a. below describes the power cable and subparagraph b. describes the interconnecting cable.

a. Power Cable. The power cable CO-212 is a special purpose concentric cable. The inner conductor is number 8 AWG and consists of 49 strands of number 25 AWG tinned copper wire, rope lay. The inner conductor is insulated by a layer of Buna S compound. The outer conductor consists of 41 to 43 strands of number 24 AWG tinned copper wire closely laid over the insulated inner conductor in a single helical layer to form a concentric conductor. The outer jacket is a layer of Buna S compound applied over cotton serving. The over-all diameter of the cable is 0.516 ±0.010 inch.

b. Interconnecting Cable. The interconnecting cable WM-4/U is a 28-conductor special purpose cable. Construction of the cable is as follows:

| All conductors #22 AWG | | Remarks |
|---|---|---|
| Color of Insulation | Tracer | |
| White | None | Twisted together and shielded with tinned copper braid to form inner core of cable. |
| Black | None | |
| White | None | Closely laid around inner core in a single helical layer to form first layer. |
| White | One ridge | |
| White | Two ridges | |
| Red | None | |
| Red | One ridge | |
| Red | Two ridges | |
| Green | None | |
| Black | None | |
| Black | One ridge | |
| Black | Two ridges | |
| Yellow | None | |
| Yellow | One ridge | |
| Yellow | Two ridges | |
| Blue | None | Closely laid around first layer in a single helical layer to form a second layer. |
| Blue | One ridge | |
| Blue | Two ridges | |
| Orange | None | |
| Orange | One ridge | |
| Orange | Two ridges | |
| Green | One ridge | |
| Green | Two ridges | |
| Gray | None | |
| Gray | One ridge | |
| Brown | None | |
| Brown | One ridge | |
| Brown | Two ridges | |

Each of the 28 conductors is insulated by a layer of synthetic rubber. The cable is covered by a tinned copper braid shield and an outer jacket of Buna S compound applied over cotton serving. The over-all diameter of the cable is 0.750 +0.000 -0.030.

12. Additional Equipment Required

The following material is not supplied as part of AN/VRC-24(XC-2), but is required for its operation:

| | |
|---|---|
| Antenna | Vehicular uhf antenna. |
| Power source | 24 vdc vehicular electrical system. |
| | Note. The output voltage from a 24 vdc vehicular electrical system is approximately 28 vdc when the battery charging generator is operating. |
| Chest set | Chest Set Group AN/GSA-6 and Headset-Microphone H-53/U. |
| Headset (optional) | Navy type CW-49507, or equivalent 600-ohm headset. |
| Headset cord (optional) | Audio Headset Cord CX-1334/U or equivalent. |
| Loudspeaker (optional) | Dynamic Loudspeaker LS-166/U, or equivalent. |
| Microphone (optional) | Microphone M-29/U, or equivalent. |

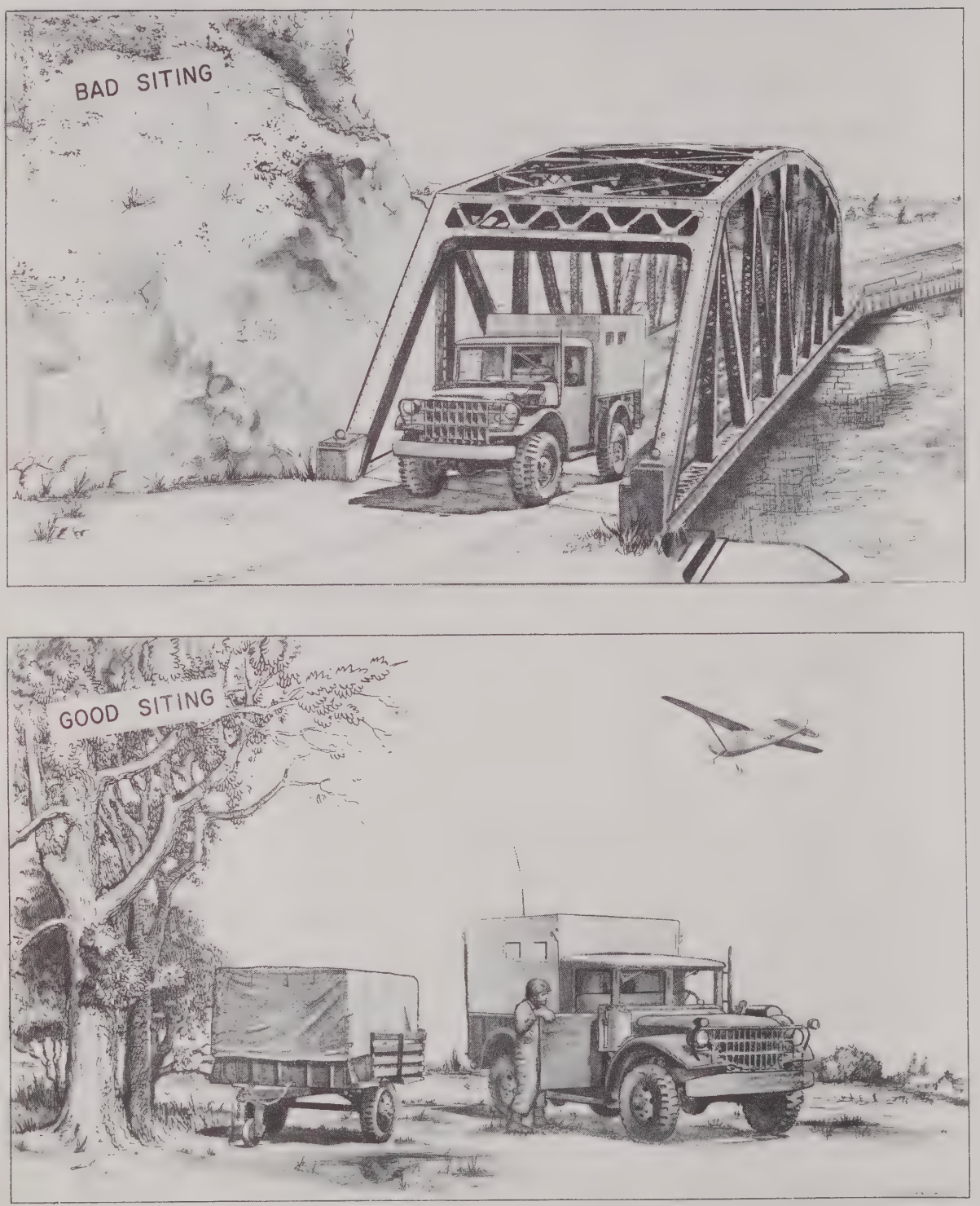



Figure 7. Siting Radio Set AN/VRC-24(XC-2)

## CHAPTER 2

## INSTALLATION INSTRUCTIONS

### Section I. SERVICE UPON RECEIPT OF RADIO SET AN/VRC-24(XC-2)

13. Siting
(fig. 7)

a. The best location for radio equipment depends on the tactical situation and the local conditions such as the type of vehicle in which the equipment is installed, the need for concealment, the terrain and the need of easy access to messengers. Signals from Radio Set AN/VRC-24(XC-2) have a greater range if the antenna is high and clear of hills, buildings, cliffs, densely wooded areas, and other obstructions. Depressions, valleys, and other low places are poor locations for radio reception and transmission because the surrounding high terrain absorbs rf energy. Weak or otherwise undesirable signals may be expected if the set is operated under or close to steel bridges, underpasses, power lines, or power unit. Choose, if possible, a location on a hilltop or elevation. Flat ground is desirable. Normally, transmission over water is better than over land. If possible, avoid locating the radio set near field hospitals or other sources of radio interference.

14. Unpacking New Equipment

a. Place the packing cartons as near the point of installation as is convenient.

b. Open the cardboard cartons and remove the equipment.

c. Check the contents of the shipping containers against the master packing slip.

d. Inspect the equipment for damage incurred during shipment.

e. Operate all controls and switches and examine for looseness. Rough operation or binding indicates a damaged control.

f. Remove receiver-transmitter from case and inspect for loose tube shields and broken tubes.

15. Installation of Radio Set AN/VRC-24(XC-2)

In general, follow the procedures outlined in subparagraphs a., b., and c. below for all vehicular installations. For specific procedures, refer to the instructions furnished with the installation kit for the particular vehicle in which it is to be installed.

a. Mounting MT-1436(XC-2)/VRC-24 (fig. 8).

(1) Remove the upper tray from the mounting. Two Phillips flat head screws in each corner hold the upper tray to the shockmounts.

(2) Remove the cover from the junction box on the rear of the mounting.

(3) Insert the power cable through the small gland and connect the center conductor to the positive terminal E1801 and connect the outer shield to the negative terminal E1802. Tighten the locking nut on the gland to provide a watertight seal.

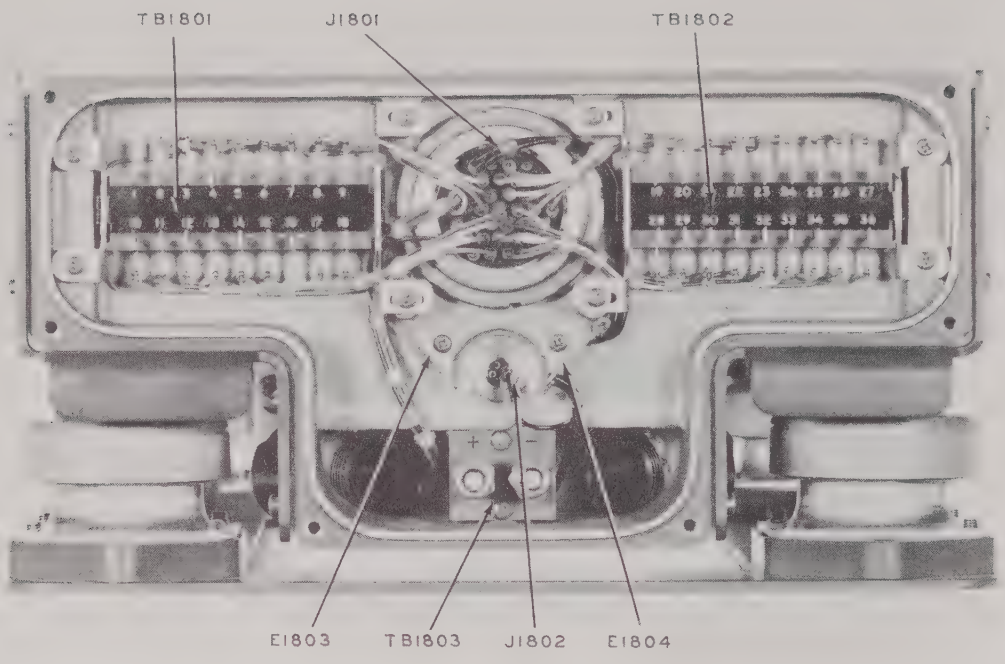


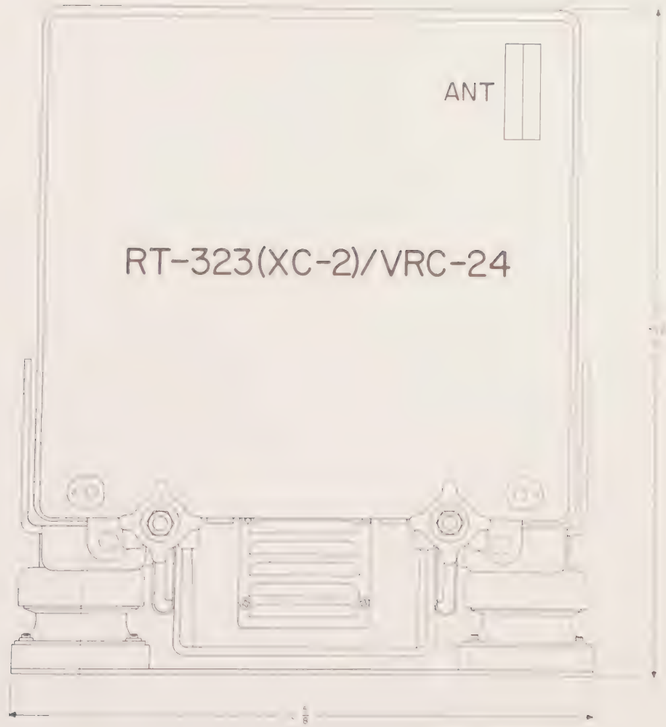

Figure 8. Mounting MT-1436(XC-2)/VRC-24, rear view, terminal box cover removed

(4) Insert interconnecting cable through one of the larger glands and connect to terminal boards TB1801 and TB1802 as directed in the following table. Tighten the locking nut on the gland to provide a watertight seal.

(5) The following table lists the interconnecting cable connections to Mounting MT-1436(XC-2)/VRC-24.

| Wire Color | Tracer | TB1801 Terminal No. | TB1802 Terminal No. | Function |
|---|---|---|---|---|
| Red | Two ridges | 2 and 3 | | Pilot Light |
| Brown | None | 4 | | Speaker |
| White | None | 10 | | Channel Selector |
| White | One ridge | 11 | | Channel Selector |
| Yellow | Two ridges | 12 | | Squelch Light |
| Black | Inner core | 17 | | Interphone Microphone |
| White | Inner core | 18 | | Radio Microphone |
| Blue | None | | 23 | 50 mw Audio |
| Yellow | None | | 25 | Squelch ON-OFF |

NOTE:
MINIMUM CLEARANCE $\frac{1}{2}$" ON BOTH SIDES, TOP AND REAR OF UNIT.



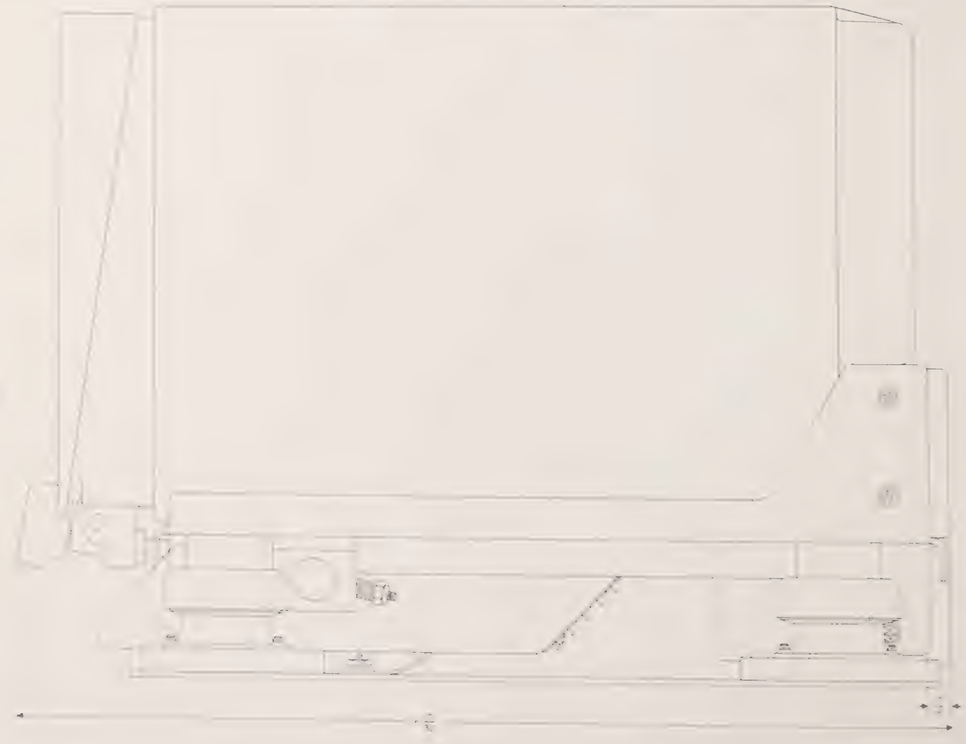



Figure 9. Outline and Mounting Dimensions

(5) Interconnecting cable connections to Mounting MT-1436(XC-2)/VRC-24 (Cont)

| Wire Color | Tracer | TB1801 Terminal No. | TB1802 Terminal No. | Function |
|---|---|---|---|---|
| Blue | One ridge | | 26 | Remote Audio |
| Blue | Two ridges | | 28 | Retransmit Audio |
| Yellow | One ridge | | 29 | Squelch Sensitivity |
| Black | Two ridges | | 30 | Radio Control |
| Black | One ridge | | 31 | Interphone Control |
| White | Two ridges | | 32 | Channel Selector |
| Red | None | | 33 | Channel Selector |
| Red | One ridge | | 34 | Channel Selector |
| Green | None | | 35 | ON-OFF 26.4 vdc |
| Orange | None | | 36 | ON-OFF Control |
| Black | None | | | Ground, Connect to E1803 |
| Grey | None | | | AF Input Return, Connect to E1803 |

(6) Connect the outer shields of the interconnecting cable and the inner core to ground lug E1803.

(7) Replace the cover on the junction box.

(8) Using the lower plate as a template, locate and drill the 8 mounting holes and bolt the lower plate of the mounting in place. In any installation allow the minimum clearance specified in figure 9.

(9) Replace the upper tray on the lower plate. Secure the grounding strap under the nearest mounting bolt, removing paint as necessary to insure proper grounding to the vehicle frame.

b. Receiver-Transmitter RT-323(XC-2)/VRC-24. Slide the receiver-transmitter onto the upper tray of Mounting MT-1436(XC-2)/VRC-24 and fasten in place with the clamps on the front of the mounting. Check that the rear plug P1 on the receiver-transmitter is securely seated in jack J1801 on the mounting.

c. Control C-1439(XC-2)/VRC-24 (fig. 10).

(1) Remove the rear cover from the control unit.

(2) Insert the free end of the interconnecting cable through a gland on the bottom of the unit and connect to terminal board TB1701 as directed in the following table. Tighten the locking nut on the gland to provide a watertight seal

(3) The following table lists the interconnecting cable connections to Control C-1439(XC-2)/VRC-24.

| Wire Color | Tracer | TB1701 Terminal No. | Function |
|---|---|---|---|
| Black | Inner Core | 1 | Interphone Microphone |
| White | Inner Core | 2 | Radio Microphone |
| Blue | One ridge | 3 | Remote Audio |
| Blue | None | 4 | 50 mw Audio |
| Yellow | Two ridges | 5 | Squelch Light |
| Yellow | None | 6 | Squelch ON-OFF |
| Yellow | One ridge | 7 | Squelch Sensitivity |
| Black | One ridge | 9 | Interphone Control |
| Black | Two ridges | 10 | Radio Control |
| Orange | None | 11 | ON-OFF Control |
| Green | None | 12 | ON-OFF 26.4 vdc |
| Black | None | 13 | Ground |
| White | None | 15 | Channel Selector |
| White | One ridge | 16 | Channel Selector |
| White | Two ridges | 17 | Channel Selector |
| Red | None | 18 | Channel Selector |
| Red | One ridge | 19 | Channel Selector |
| Grey | None | 20 | Af Input Return |
| Red | Two ridges | .21 | Pilot Light |
| Brown | None | 22 | Speaker Audio |
| Blue | Two ridges | 23 | Retransmit Audio |
| Brown | Two ridges | 24 | Spare |
| Brown | One ridge | 25 | Spare |
| Grey | One ridge | 26 | Spare |
| Green | Two ridges | 27 | Spare |
| Green | One ridge | 28 | Spare |
| Orange | Two ridges | 29 | Spare |
| Orange | One ridge | 30 | Spare |

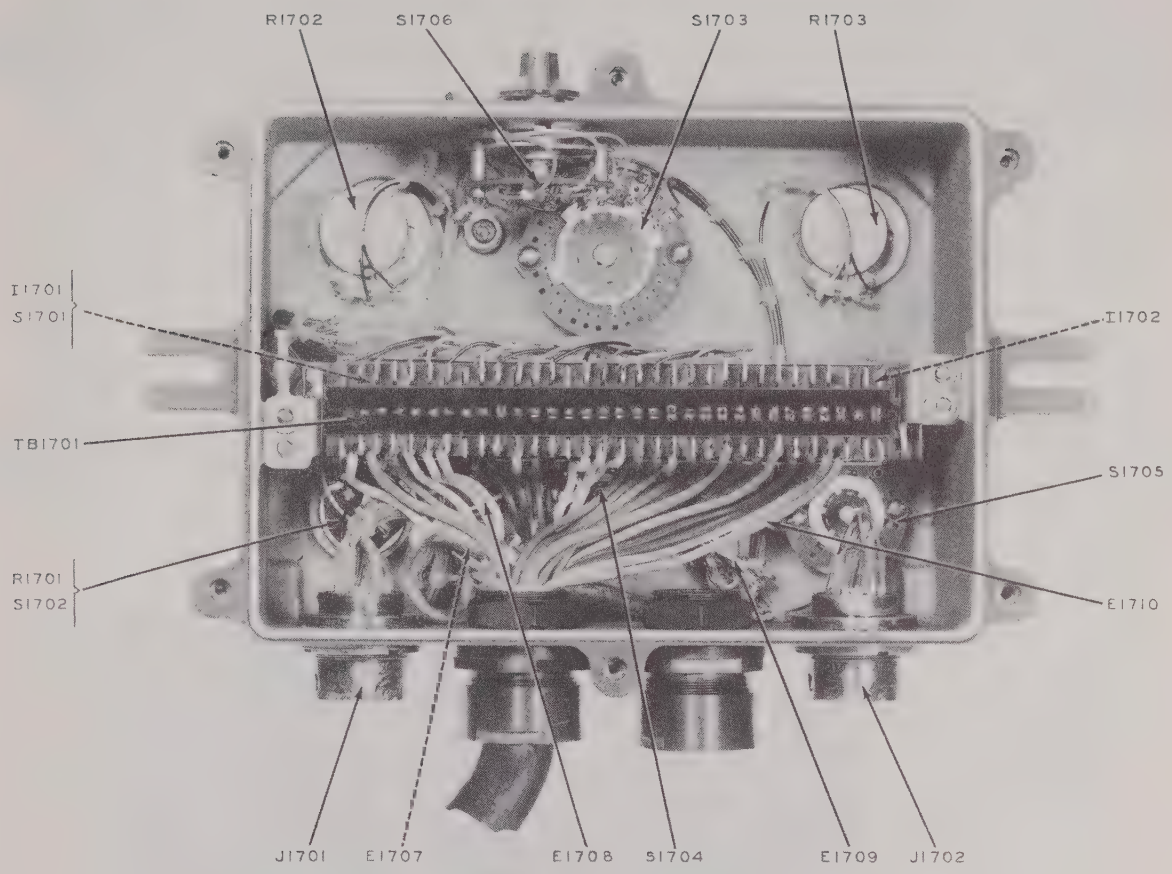



Figure 10. Control C-1439(XC-2)/VRC-24, rear view, cover removed

(4) Connect the outer shield of each cable to the ground lugs below TB1701.

(5) Using the control unit as a template locate and drill the mounting holes.

(6) Replace the rear cover on the control unit and bolt the unit in place in the vehicle.

d. Final Connections.

(1) Connect the power cable to the vehicular electrical system. Observe polarity, if the wrong polarity is supplied to the set rectifier CR1 will prevent power relay K3 from operating.

(2) Connect the antenna lead to ANT. jack J701 on the front panel of the receiver-transmitter.

(3) Connect chest sets, loudspeakers, etc., to the jacks provided on the receiver-transmitter and the control unit.

## Section II. INITIAL ADJUSTMENT OF EQUIPMENT

Note. Personnel performing the procedures described in this section must be familiar with the use of controls and instruments and with the operating procedures described in chapter 3.

16. Extent of Initial Adjustments

The procedure outlined in paragraph 17 must be performed before the radio set can be used for the routine operation described in chapter 3. Whenever the assigned frequency of any preset channel is changed the procedure for presetting channels (par. 17) must be repeated.

17. Presetting Channels
(fig. 11)

Perform the following procedures to preset channels to a specified frequency.

a. Energize the equipment by performing the starting procedure (par. 22).

b. Loosen the four slotted head screws in the channel memory drum access door and open the door.

c. Using the channel selector switch position the preset channel memory drum to bring the pin slot for the desired preset channel to the set position. The slots are identified by numbers at the left end of the drum.

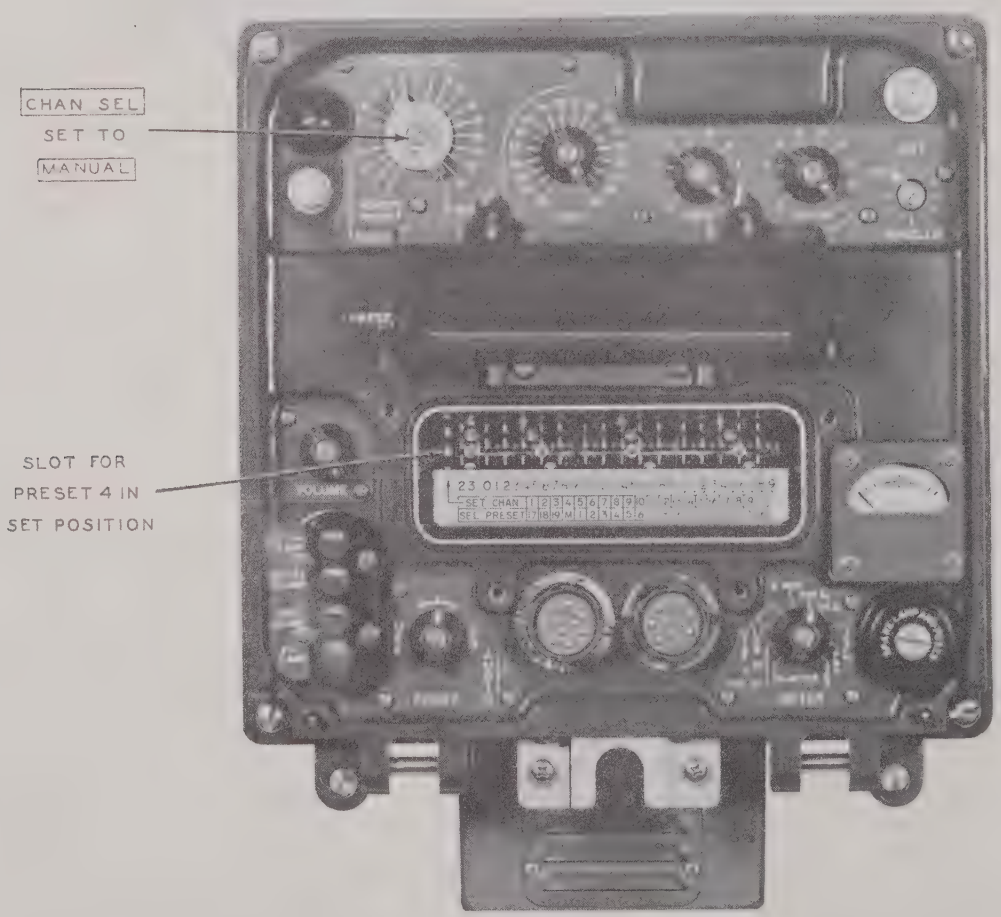



Figure 11. Presetting Channels

d. Slide the pin for each digit of the assigned frequency to a position directly over the number corresponding to that digit. For example, if the assigned frequency for preset channel 4 is 365.6 mc, set the pins as follows:

(1) Select preset channel M. The slot for preset channel 4 will be directly over the number strip.

(2) Slide the left-hand pin to a position over the number 3.

(3) Slide the left-center pin to a position over the number 6.

(4) Slide the right-center pin to a position over the number 5.

(5) Slide the right-hand pin to a position over the number 6.

e. Repeat steps c. and d. for each channel to be preset.

f. Select each channel in turn and check that the set is tuned to the proper frequency for each preset channel as indicated through the FREQUENCY windows in the front panel.

CHAPTER 3

OPERATING INSTRUCTIONS

## Section I. CONTROLS AND INSTRUMENTS

### 18. General

This section locates, illustrates, and describes the use of the various controls and instruments that are provided for the proper operation of the equipment. Haphazard operation or improper settings of the controls can cause damage to electronic equipment. For this reason, it is important to know the function of every control. The actual operation of the equipment is discussed in the next section of this instruction book.

### 19. Receiver-Transmitter RT-323(XC-2)/VRC-24 Controls (fig. 12)

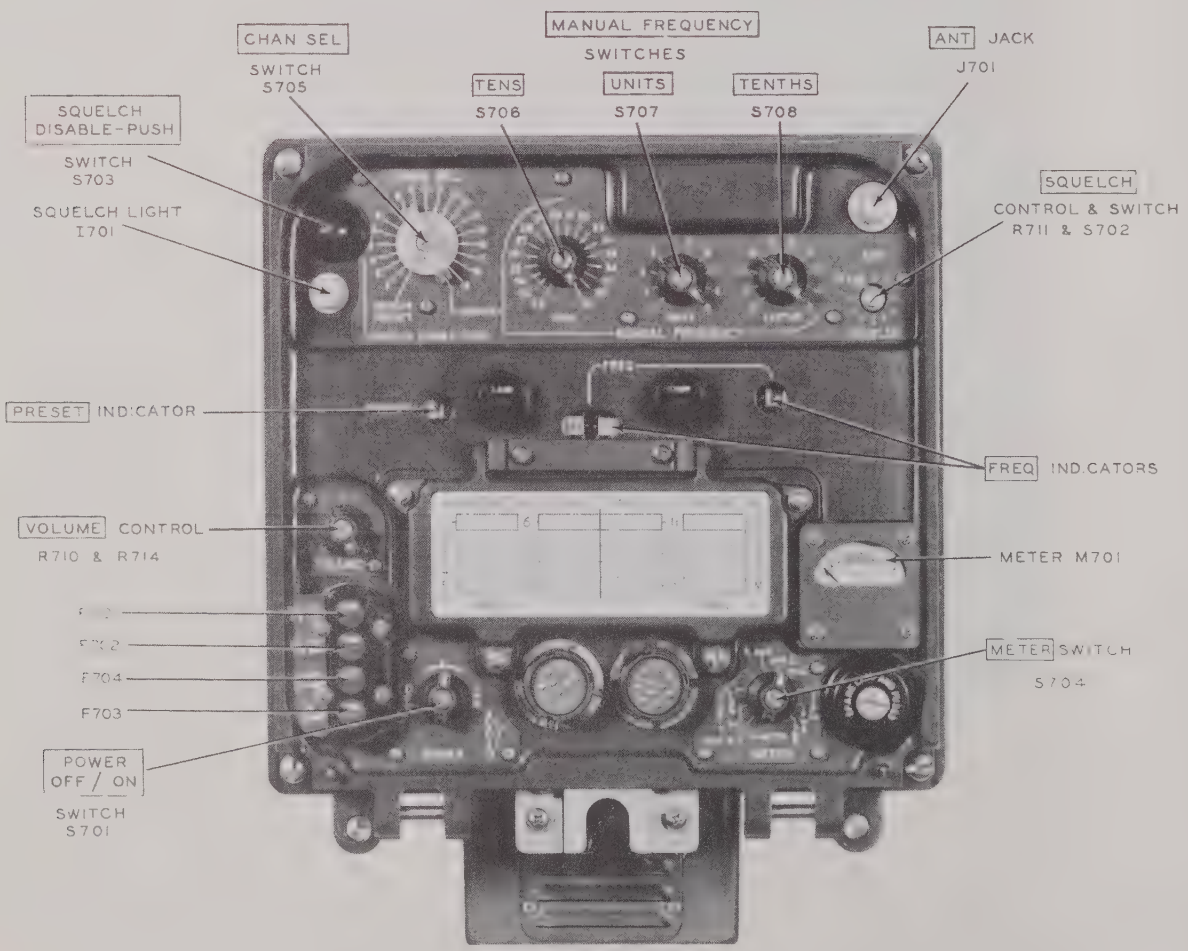



Figure 12. Receiver-Transmitter RT-323(XC-2)/VRC-24, controls

The following table lists the controls of the receiver-transmitter and indicates their function:

| Control | Function and use |
|---|---|
| POWER switch (S701) | Momentary contact rotary switch. Momentarily energizes the coil of power relay K3 when operated clockwise. Relay K3 has holding contacts which close and keep the coil energized. Operating S701 counterclockwise shorts out the relay coil and de-energizes relay K3. |
| CHAN SEL switch (S705) | A 21 position switch with positions as follows:<br>REMOTE PRESET — Transfers control to the remote CHANNEL selector.<br>Positions 1 through 19 — Select preset channels 1 through 19<br>MANUAL — Transfers frequency selection control to switches S706, S707, and S708. |
| MANUAL FREQUENCY switches | |
| TENS (S706) | Selects first two digits of frequency. |
| UNITS (S707) | Selects third digit of frequency. |
| TENTHS (S708) | Selects fourth digit of frequency. |
| SQUELCH control (R711) | Controls the ability of the receiver to receive weak signals. The position or setting of the SQUELCH control establishes the minimum strength of the received signal required to permit operation of the receiver. When the SQUELCH control is in its maximum counterclockwise position the squelch circuit is inoperative and the receiver sensitivity is maximum. When the SQUELCH control is in its maximum clockwise position a 50 microvolt signal (approximately) is required to operate the squelch circuit. |
| Squelch light (I701) | Lights when the squelch is turned off or when a signal strong enough to operate the squelch is received. |
| SQUELCH DISABLE-PUSH switch (S703) | Disables the squelch circuit when pushed. |
| VOLUME control (R710 and R714) | Adjusts the audio level to speaker and local headset. |
| Meter (M701) and METER switch (S704) | The meter monitors any one of 10 circuits which are selected by the METER switch. Switch positions and monitoring functions are as follows:<br>Positions — Function<br>S-METER — Indicates strength of received signal.<br>HIGH B+ — Indicates voltage from 300 v supply. |

19. Receiver-Transmitter RT-323(XC-2)/VRC-24 Controls (Cont)

| Control | Function and use | |
|---|---|---|
| | Positions | Function |
| | LOW B+ | Indicates voltage from +125 v supply. |
| | LINE V | Indicates voltage from 26.4 v supply. |
| | % MOD | Indicates modulator output. |
| | DVR $I_b$ | Indicates plate current of transmit driver tube. |
| | PA $I_g$ | Indicates control grid current of transmit power amplifier tube. |
| | PA $I_b$ | Indicates plate current of transmit power amplifier tube. |
| | POWER | Indicates rf power output. |
| | SWR | Indicates reflected rf power. |
| FREQUENCY indicator | Two small windows in front panel through which frequency indicating wheels are visible. | |
| PRESET indicator | Small window in front panel through which preset channel number indicating wheel is visible. | |

20. Control C-1439(XC-2)/VRC-24 Controls (fig. 13)

The following table lists the controls of the remote control unit and indicates their function:

| Control | Function and use |
|---|---|
| SELECTOR switch (S1704) | A five-position selector switch with four blank positions which can be wired to connect the control into other systems. Position 3 connects the control into the AN/VRC-24 system. |
| POWER switch (S1705) | A two-position momentary contact switch. Energizes K3 in the receiver-transmitter in the clockwise position to turn the set on. De-energizes K3 in the counterclockwise position. |
| Pilot light (I1702) | Lights when power is on. |
| RADIO-INT-RADIO switch (S1706) | A three-position rotary switch with spring return to the INT position. In the INT position connects all af and af interphone inputs to the interphone mike input and connects the radio and interphone control inputs to the interphone control line. In either RADIO position, connects the radio control input to the radio control line and the af input to the radio mike line. A latch is provided to lock the switch in the clockwise RADIO position. |

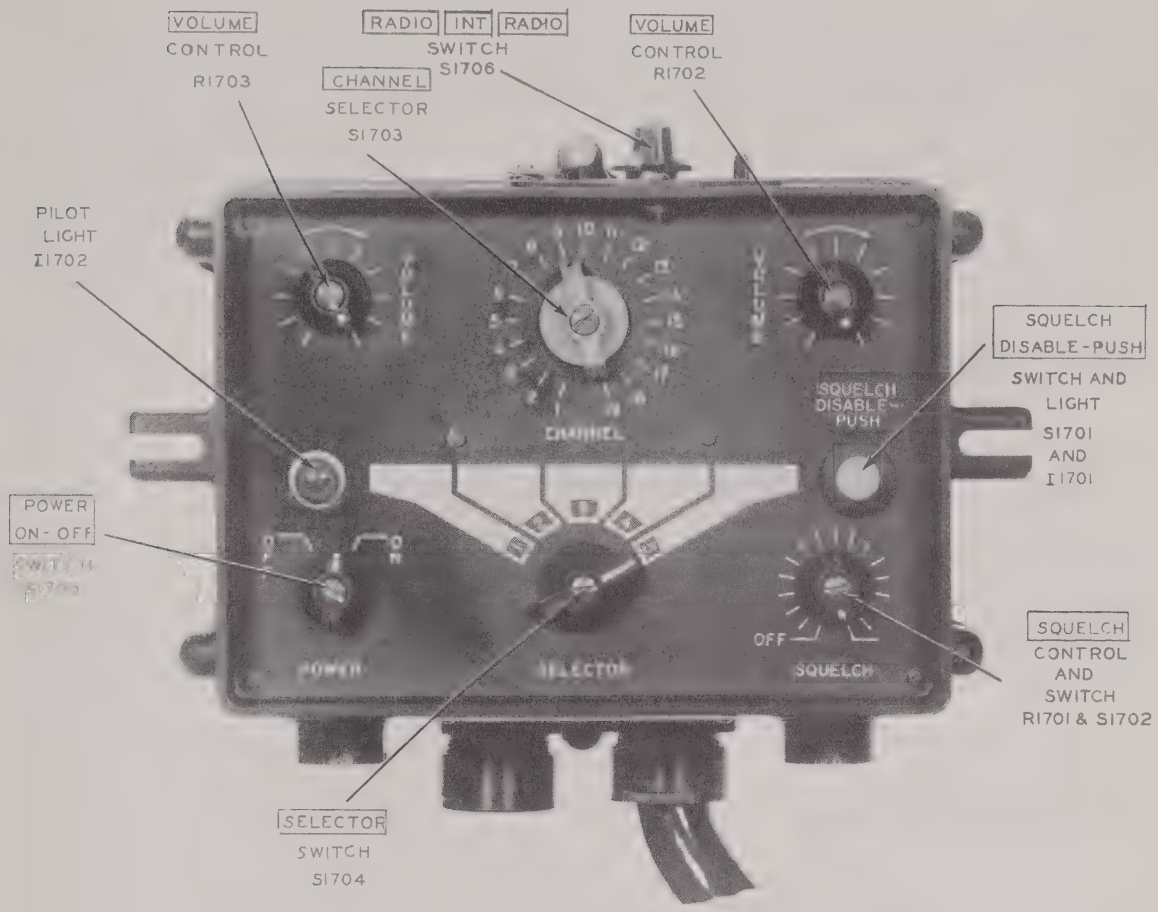



Figure 13. Control C-1439(XC-2)/VRC-24, controls

20. Control C-1439(XC-2)/VRC-24 Controls (Cont)

| Control | Function and use |
|---|---|
| CHANNEL selector switch (S1703) | Selects preset channels 1 through 19 when the CHAN SEL switch on the receiver-transmitter front panel is in the REMOTE position. |
| VOLUME controls (R1702 and R1703) | Control the level of the af output. |
| SQUELCH DISABLE-PUSH light and switch (I1701 and S1701) | Lights when the squelch is turned off or when a signal strong enough to operate the squelch is received. Pushing on the light operates an integral push-button switch to operate the squelch for checking receiver performance. |
| SQUELCH control (R1701) | Controls the ability of the receiver to receive weak signals. The position or setting of the SQUELCH control establishes |

20. Control C-1439(XC-2)/VRC-24 Controls (Cont)

| Control | Function and use |
|---|---|
| SQUELCH control (R1701) (Cont) | the minimum strength of the received signal required to permit operation of the receiver. When the SQUELCH control is in its maximum counterclockwise position the squelch circuit is inoperative and the receiver sensitivity is maximum. When the squelch control is in its maximum clockwise position a 50 microvolt signal (approximately) is required to operate the squelch circuit. |

## Section II. OPERATION UNDER USUAL CONDITIONS

### 21. Modes of Operation

Receiver-Transmitter RT-323(XC-2)/VRC-24 may be operated either locally or remotely. When operated locally, reception and transmission of radiotelephone signals and intercommunication between local and remote positions is possible. Both manual and automatic frequency selection are possible from the front panel. Automatic frequency selection is the normal mode of operation. When operated remotely by means of Control C-1439(XC-2)/VRC-24 the same facilities except manual frequency selection are available. Local operating procedures are given in par. 22 and remote operating procedures are given in par. 23.

### 22. Local Operating Procedure

a. Preliminary Starting Procedure.

(1) Set the SQUELCH control to OFF.

(2) Set the METER switch to LINE V.

(3) Set the VOLUME control to approximately its midrange position.

b. Starting Procedure.

Note. If an abnormal indication is obtained during the starting procedure refer to the equipment performance check list (par. 41) for corrective measures.

(1) Turn on the equipment by operating the POWER switch momentarily to the ON position. The dial lights will light, the SQUELCH light will light, and either noise or signals will be heard in the headset or speaker. The panel meter, indicating line voltage, should read near center scale (red band).

(2) Set the METER switch to S-METER. The panel meter now indicates the strength of the received signal.

c. Tuning Procedure. All circuits of the set are tuned automatically by the frequency selector. Frequency selection can be accomplished either automatically or manually.

Note. The procedure for presetting channel frequencies is given in paragraph 17.

(1) Automatic frequency selection. Set the CHAN SEL switch to the desired preset channel. When the tuning cycle is complete, five seconds or less after setting the switch, the preset channel number and frequency are indicated directly through windows in the front panel.

(2) Manual frequency selection. Set the CHAN SEL switch to MANUAL and set the MANUAL FREQUENCY switches to the desired frequency. When the tuning cycle is complete the frequency is indicated through the windows in the front panel.

d. Radiotelephone Reception. Receiver-Transmitter RT-323(XC-2)/VRC-24 operates as a receiver whenever the set is turned on and the push-to-talk switches are open (standby condition).

(1) To eliminate annoying noise in the speaker or headset when no station or signal is being received, turn the SQUELCH control slowly clockwise to the point where the noise is first eliminated. Tune set to each of the 19 preset channels and check for squelch action. Set the SQUELCH control to the lowest setting that will provide squelch action on all 19 preset channels.

Caution: If very weak signals or signals subject to fading are to be received, turn the SQUELCH control to the OFF position to avoid the possibility of missing all or part of a message due to squelch action.

(2) Adjust the VOLUME control to give the desired volume.

e. Radiotelephone Transmission.

(1) Turn the METER switch to the % MOD position.

(2) Push the RADIO-INT button and operate the push-to-talk switch on the chest set and speak into the microphone. Observe the reading of the panel meter. The meter should peak near center scale (red band).

f. Interphone. To speak to the operators at the remote positions using the interphone circuit, operate the push-to-talk switch on the chest set and speak into the microphone.

g. Stopping Procedure. To turn off the equipment turn the POWER switch momentarily to the OFF position.

23. Remote Operating Procedure

a. Starting Procedure. Turn on the equipment by operating the POWER switch momentarily to ON position.

b. Tuning Procedure. Set the CHAN SEL switch to the desired channel. When the tuning cycle is complete, the set is ready for operation.

c. Radiotelephone Reception. Adjust the VOLUME control for proper volume.

d. Radiotelephone Transmission. Lock the RADIO-INT-RADIO switch in the RADIO position. Push the RADIO-INT button and operate the push-to-talk switch on the chest set and speak into the microphone.

e. Interphone. To speak to the operator at the local position using the interphone circuit, operate the push-to-talk switch on the chest set and speak into the microphone. To listen release the push-to-talk switch. When Chest Set Group AN/GSA-6 is used and the RADIO-INT-RADIO switch on Control C-1439(XC-2)/VRC-24 in the RADIO position, the RADIO-INT switch on the chest set controls the mode of operation. When the RADIO-INT-RADIO switch on the control is in the INT position only interphone operation is possible. The RADIO-INT-RADIO switch is used to control the mode of operation whenever the handset or hand microphone is used.

f. Stopping Procedure. To turn off the equipment operate the POWER switch momentarily to the OFF position.

## Section III. OPERATION UNDER UNUSUAL CONDITIONS

### 24. General

The operation of radio equipment may be difficult in regions where extreme cold, heat, moisture, sand and dust condtions prevail. Procedures for minimizing the effect of these unusual operating conditions are outlined in the following paragraphs.

### 25. Operation in Arctic Climates

Subzero temperatures and climatic conditions associated with cold weather affect the efficient operation of the equipment. Use the following precautions for operating under such adverse conditions.

a. Handle the equipment carefully.

b. Keep the equipment warm and dry. If the set is not housed in a heated enclosure, construct an insulated box in which the set can be housed.

c. Heavy coatings of frost will gather on mouth-type microphones in extreme cold weather when the microphones are used in the open air or in a cold room. The breath will cause frost to form in the small holes of the cap and will affect transmitter modulation. Plastic covers have been designed to protect some types of microphones; use them when available. Have a spare microphone ready, if possible, in case the one in use fails to function properly.

d. Wear a knitted woolen cap over the earphones when operating in the open air with headsets that do not have rubber earpieces. Frequently, when headsets without rubber earpieces are worn, the edges of the ears may freeze without the operator being conscious of this condition. Never flex rubber earcaps, since this action may render them useless. If water gets into the receivers, or if moisture condenses within them, it may freeze and impede the actuation of the diaphragm. When this happens, remove the ice and moisture from the receiver.

e. When equipment which has been exposed to the cold is brought into a warm room, it will sweat until it reaches room temperature. This condition also arises when equipment warms up during the day after exposure during a cold night. When the equipment has reached room temperature, dry it thoroughly.

### 26. Operation in Tropical Climates

When operated in tropical climates, radio equipment may be installed in tents, huts, or, when necessary, in underground dugouts. When equipment is installed below ground and when it is set up in swampy areas, it is subjected to more acute moisture conditions than those that are normal in the tropics. When operating under these conditions keep the equipment in its case at all times and keep access ports closed as much as possible. If it becomes necessary to open the access ports make certain that the equipment has been in operation long enough to thoroughly heat the air inside the case.

### 27. Operation in Desert Climates

a. Conditions similar to those encountered in a tropical climate often prevail in desert areas. Use the same measures to insure proper operation of the equipment.

b. The main problem which arises with equipment operated in the desert is the large amount of sand, dust, and dirt which enters moving parts of radio equipment, such as gears and bearings. Because of the immersion-proof feature of this equipment this problem is of significance only when it becomes necessary to remove the receiver-transmitter from its case for trouble shooting and repair, or when it becomes necessary to change the setting of the preset channels. When repair or adjustment is necessary, it should be performed in a shelter which is as dust-proof as possible.

c. Never tie power cords, signal cords, or other lines to either the inside or outside of tents. Desert areas are subject to sudden wind squalls which may jerk the connections loose or break the lines.

d. Take care to keep the equipment as free from dust as possible. Pay particular attention to the lubrication of the equipment when it is removed from its case for servicing. Excessive amounts of dust, sand, or dirt, which may enter the equipment when it is taken from the case, coming in contact with oil and grease, will result in damage to the tuning system.

e. The drastic fall in temperature at night often causes condensation on the equipment. For protection, cover it with a tarpaulin or similar material.

# CHAPTER 4

# ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

## Section I. TOOLS AND EQUIPMENT

### 28. General

The tools, parts, supplies, and test equipment necessary to perform organizational maintenance are authorized by appropriate publications. Additional tools are supplied with the radio set.

### 29. Tools and Materials Required for Radio Set AN/VRC-24(XC-2)

The following list of tools and materials are not furnished as part of the radio set. They are required for organizational maintenance.

a. Tools.

1 Tool Equipment TE-41.
1 Moisture and Fungus Proofing Kit MIC-2/GSM.

b. Materials.

Orangestick.
Cheesecloth, bleached, lint-free.
Carbon tetrachloride.
Paper, sand, flint #0000.
Solvent, Dry Cleaning (SD) (Fed spec No. P-S-661a).

c. Test Equipment

Multimeter TS-352/U, TM 11-5527.
Electron Tube Test Set TV-7/U, TM 11-5083.

### 30. Special Tools Supplied with Radio Set AN/VRC-24

Eight special tools are supplied with Radio Set AN/VRC-24(XC-2). They are mounted in clips on the rear plate of the main frame. Subparagraph a. below lists the tools, subparagraph b. below describes the use of the special alignment screwdriver and subparagraph c. below describes the use of the tuning wand.

a. Tools (fig. 14)

1 right-angle Phillips screwdriver.
1 right-angle no. 8 Bristo wrench.
1 special alignment screwdriver.
1 tuning wand.
1 gear loading rod.
1 7-pin miniature tube puller.
1 9-pin miniature tube puller.
1 special tube puller (for removing 4X150D).

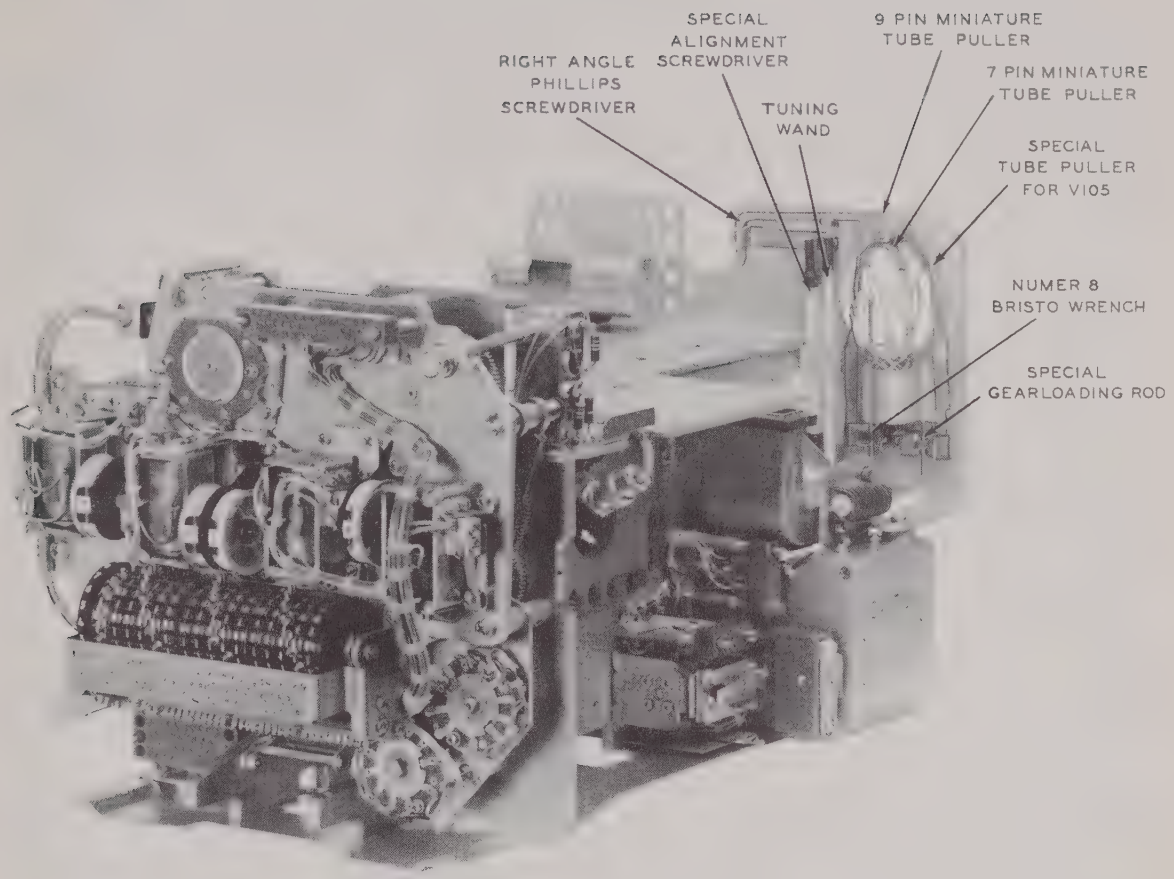



Figure 14. Tools Supplied with Radio Set AN/VRC-24(XC-2)

b. Use of the Special Alignment Screwdriver. The special alignment screwdriver is used for adjusting all tuning cores and trimmer capacitors. One end of the tool has a slot to fit the flatted lead screws and the other end has a blade to fit the slotted lead screws.

c. Use of the Tuning Wand. The tuning wand is an insulated rod with a brass (yellow) slug mounted on one end and an iron (black) slug mounted on the other. When the iron slug (black tip) is inserted into the field of an inductor the inductance is increased. When the brass slug (yellow tip) is inserted into the field of an inductor the inductance is decreased.

## Section II. PREVENTIVE MAINTENANCE SERVICES

### 31. Definition of Preventive Maintenance

Preventive maintenance is work performed on equipment (usually when the equipment is not in use) to keep it in good working order so that breakdowns and needless interruptions in service are kept to a minimum. Preventive maintenance differs from trouble shooting and repair since its object is to prevent certain troubles from occurring.

### 32. General Preventive Maintenance Techniques

a. Use #0000 sandpaper to remove corrosion.

b. Use a clean, dry, lint-free cloth or a dry brush for cleaning. If the dry cloth or brush will not remove the dirt, use one of the following techniques, as applicable:

(1) When cleaning electrical contacts, use a cloth or brush moistened with carbon tetrachloride; when the contacts are clean, wipe them dry with a dry cloth.

Caution: Repeated contact of carbon tetrachloride with the skin or prolonged breathing of the fumes is dangerous. Make sure adequate ventilation is provided.

(2) When cleaning surfaces that perform no electrical function, use a cloth or brush moistened with Solvent, Dry Cleaning (SD); after cleaning, wipe the parts dry with a dry cloth.

c. If available, dry compressed air may be used at a line pressure not exceeding 60 psi to remove dust from inaccessible places. Be careful, however, or mechanical damage from the air blast may result. Do not use compressed air in the vicinity of speaker cones or meter movements.

Caution: When using compressed air, always direct the first blast of the air line toward the floor. This clears condensed moisture from the line.

d. For further information on preventive maintenance techniques, refer to TB SIG 178, Preventive Maintenance Guide for Radio Communication Equipment.

### 33. Use of Preventive Maintenance Forms

a. The decision concerning the items on DA forms 11-238 and 11-239 that are to be applied to this equipment is a tactical decision to be made in the case of first echelon maintenance by the communication officer/chief or his designated representative, and in the case of second and third echelon maintenance, by the individual making the inspection. Instructions for the use of each form appear on the reverse side of the form.

b. Circled items on figures 15 and 16 are partially or totally applicable to Radio Set AN/VRC-24 (XC-2). References in the ITEM column are to paragraphs that contain additional detailed information.

### 34. Performing Preventive Maintenance

Caution: Tighten screws, bolts, and nuts carefully. Fittings tightened beyond the pressure for which they are designed will be damaged or broken.

a. Exterior Items.

(1) Check for completeness and general condition of the radio set. The components of the set are listed in paragraph 6.

(2) Check suitability of location and installation for normal operation.

## OPERATOR FIRST ECHELON MAINTENANCE CHECK LIST FOR SIGNAL CORPS EQUIPMENT
### RADIO COMMUNICATION, DIRECTION FINDING, CARRIER, RADAR

*INSTRUCTIONS: See other side*

| EQUIPMENT NOMENCLATURE | EQUIPMENT SERIAL NO. |
|---|---|
| | |

LEGEND FOR MARKING CONDITIONS: ✓ Satisfactory; X Adjustment, repair or replacement required; (X) Defect corrected.
NOTE: Strike out items not applicable.

**DAILY**

| NO. | ITEM | CONDITION S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|---|---|
| 1 | COMPLETENESS AND GENERAL CONDITION OF EQUIPMENT *(receiver, transmitter, carrying cases, wire and cable, microphones, tubes, spare parts, technical manuals and accessories).* PAR 34a(1) | | | | | | | |
| 2 | LOCATION AND INSTALLATION SUITABLE FOR NORMAL OPERATION. PAR 34a(2) | | | | | | | |
| 3 | CLEAN DIRT AND MOISTURE FROM ANTENNA, MICROPHONE, HEADSETS, CHESTSETS, KEYS, JACKS, PLUGS, TELEPHONES, CARRYING BAGS, COMPONENT PANELS. PAR 34a(3) | | | | | | | |
| 4 | INSPECT SEATING OF READILY ACCESSIBLE "PLUCK-OUT" ITEMS: TUBES, LAMPS, CRYSTALS, FUSES, CONNECTORS, VIBRATORS, PLUG-IN COILS AND RESISTORS. PAR 34a(4) | | | | | | | |
| 5 | INSPECT CONTROLS FOR BINDING, SCRAPING, EXCESSIVE LOOSENESS, WORN OR CHIPPED GEARS, MISALIGNMENT, POSITIVE ACTION. PAR 34a(5) | | | | | | | |
| 6 | CHECK FOR NORMAL OPERATION. PAR 34a(6) | | | | | | | |

**WEEKLY**

| NO. | ITEM | CONDITION | NO. | ITEM | CONDITION |
|---|---|---|---|---|---|
| 7 | CLEAN AND TIGHTEN EXTERIOR OF COMPONENTS AND CASES, RACK MOUNTS, SHOCK MOUNTS, ANTENNA MOUNTS, COAXIAL TRANSMISSION LINES, WAVE GUIDES, AND CABLE CONNECTIONS. PAR 34a (7) | | 13 | INSPECT STORAGE BATTERIES FOR DIRT, LOOSE TERMINALS, ELECTROLYTE LEVEL AND SPECIFIC GRAVITY, AND DAMAGED CASES. | |
| 8 | INSPECT CASES, MOUNTINGS, ANTENNAS, TOWERS, AND EXPOSED METAL SURFACES, FOR RUST, CORROSION, AND MOISTURE. PAR 34a (8) | | 14 | CLEAN AIR FILTERS, BRASS NAME PLATES, DIAL AND METER WINDOWS, JEWEL ASSEMBLIES. PAR 34a (12) | |
| 9 | INSPECT CORD, CABLE, WIRE, AND SHOCK MOUNTS FOR CUTS, BREAKS, FRAYING, DETERIORATION, KINKS, AND STRAIN. PAR 34a (9) | | 15 | INSPECT METERS FOR DAMAGED GLASS AND CASES. PAR 34a (13) | |
| 10 | INSPECT ANTENNA FOR ECCENTRICITIES, CORROSION, LOOSE FIT, DAMAGED INSULATORS AND REFLECTORS. PAR 34a (10) | | 16 | INSPECT SHELTERS AND COVERS FOR ADEQUACY OF WEATHERPROOFING. | |
| 11 | INSPECT CANVAS ITEMS, LEATHER, AND CABLING FOR MILDEW, TEARS, AND FRAYING. | | 17 | CHECK ANTENNA GUY WIRES FOR LOOSENESS AND PROPER TENSION. | |
| 12 | INSPECT FOR LOOSENESS OF ACCESSIBLE ITEMS: SWITCHES, KNOBS, JACKS, CONNECTORS, ELECTRICAL TRANSFORMERS, POWERSTATS, RELAYS, SELSYNS, MOTORS, BLOWERS, CAPACITORS, GENERATORS, AND PILOT LIGHT ASSEMBLIES. PAR 34a (11) | | 18 | CHECK TERMINAL BOX COVERS FOR CRACKS, LEAKS, DAMAGED GASKETS, DIRT AND GREASE. PAR 34a (14) | |

19 IF DEFICIENCIES NOTED ARE NOT CORRECTED DURING INSPECTION, INDICATE ACTION TAKEN FOR CORRECTION. PAR 34a (15)

DA FORM 1 MAY 51 11-238 REPLACES DA AGO FORM 419, 1 DEC 50, WHICH IS OBSOLETE.

Figure 15. DA form 11-238

(3) Remove dirt and moisture from antenna, microphone, headsets, chest sets, jacks, plugs, and panels of the component parts.

(4) Inspect the seating of the fuses on the front panel of the set and inspect all plugs and connectors.

(5) Inspect all controls for binding, scraping, excessive looseness, worn or chipped gears, misalignment and positive action.

(6) Check the radio set for normal operation. If abnormal results occur at any point in the operating procedure, refer to the equipment performance check list.

(7) Clean and tighten cables, connectors and front panels or system components.

(8) Inspect cases, mounting, antenna, and exposed metal surfaces for rust, corrosion and moisture.

(9) Inspect cords, cables, wires, and shockmounts for cuts, breaks, fraying, deterioration, kinks and strain.

(10) Inspect antenna for loose connections and mounting, for dirt and corrosion and for damaged or dirty insulators.

(11) Inspect switches, knobs, jacks, indicator lamps and meters for looseness.

(12) Clean name plates, indicator lamps and meter and dial windows.

(13) Inspect meter for damaged glass and case.

(14) Check terminal box and access port covers for cracks, leaks, damaged gaskets, dirt and grease.

(15) If deficiencies noted are not corrected during inspection, indicate action taken for correction.

b. Internal Items.

Caution: Disconnect all power from the radio set before performing the following operations. Upon completion, reconnect power and check for satisfactory operation of set.

(1) Inspect electron tubes for loose shields, cracked sockets and insufficient socket spring tension; remove dust and dirt carefully; check emission of receiver type tubes.

(2) Inspect fixed capacitors for leaks, bulges and discoloration.

(3) Inspect variable capacitors for dirt, moisture and loose mountings.

(4) Inspect resistors, bushings and insulators for cracks, chipping, blistering, discoloration and moisture.

(5) Inspect relay assemblies for loose mountings; burned, pitted or corroded contacts; misalignment of contacts and springs; damaged or dirty sockets; insufficient spring tension; binding of hinge parts.

(6) Clean and tighten switches, subassemblies and interior of chassis and cases not readily accessible.

(7) Inspect terminal blocks for loose connections, cracks and breaks.

(8) Check settings of adjustable relays on frequency selector.

(9) Lubricate equipment in accordance with instructions given in paragraph 35.

(10) Inspect dynamotor for brush wear, spring tension, arcing and fitting of commutator.

## SECOND AND THIRD ECHELON MAINTENANCE CHECK LIST FOR SIGNAL CORPS EQUIPMENT
### RADIO COMMUNICATION, DIRECTION FINDING, CARRIER, RADAR

*INSTRUCTIONS: See other side*

EQUIPMENT NOMENCLATURE | EQUIPMENT SERIAL NO.

LEGEND FOR MARKING CONDITIONS: ✓ Satisfactory; X Adjustment, repair or replacement required; ⓧ Defect corrected.
NOTE: Strike out items not applicable.

| NO. | ITEM | CONDITION |
|---|---|---|
| 1 | COMPLETENESS AND GENERAL CONDITION OF EQUIPMENT *(receiver, transmitter, carrying cases, wire and cable, microphones, tubes, spare parts, technical manuals and accessories).* PAR 34a (1) | |
| 2 | LOCATION AND INSTALLATION SUITABLE FOR NORMAL OPERATION. PAR 34a (2) | |
| 3 | CLEAN DIRT AND MOISTURE FROM ANTENNA, MICROPHONE, HEADSETS, CHESTSETS, KEYS, JACKS, PLUGS, TELEPHONES, CARRYING BAGS, COMPONENT PANELS. PAR 34a (3) | |
| 4 | INSPECT SEATING OF READILY ACCESSIBLE "PLUCK-OUT" ITEMS: TUBES, LAMPS, CRYSTALS, FUSES, CONNECTORS, VIBRATORS, PLUG-IN COILS AND RESISTORS. PAR 34a (4) | |
| 5 | INSPECT CONTROLS FOR BINDING, SCRAPING, EXCESSIVE LOOSENESS, WORN OR CHIPPED GEARS, MISALIGNMENT, POSITIVE ACTION. PAR 34a(5) | |
| 6 | CHECK FOR NORMAL OPERATION. PAR 34a(6) | |
| 7 | CLEAN AND TIGHTEN EXTERIOR OF COMPONENTS AND CASES, RACK MOUNTS, SHOCK MOUNTS, ANTENNA MOUNTS, COAXIAL TRANSMISSION LINES, WAVE GUIDES, AND CABLE CONNECTIONS. PAR 34a (7) | |
| 8 | INSPECT CASES, MOUNTINGS, ANTENNAS, TOWERS, AND EXPOSED METAL SURFACES, FOR RUST, CORROSION, AND MOISTURE. PAR 34a (8) | |
| 9 | INSPECT CORD, CABLE, WIRE, AND SHOCK MOUNTS FOR CUTS, BREAKS, FRAYING, DETERIORATION, KINKS, AND STRAIN. PAR 34a (9) | |
| 10 | INSPECT ANTENNA FOR ECCENTRICITIES, CORROSION, LOOSE FIT, DAMAGED INSULATORS AND REFLECTORS. PAR 34a(10) | |
| 11 | INSPECT CANVAS ITEMS, LEATHER, AND CABLING FOR MILDEW, TEARS, AND FRAYING. | |
| 12 | INSPECT FOR LOOSENESS OF ACCESSIBLE ITEMS: SWITCHES, KNOBS, JACKS, CONNECTORS, ELECTRICAL TRANSFORMERS, POWERSTATS, RELAYS, SELSYNS, MOTORS, BLOWERS, CAPACITORS, GENERATORS, AND PILOT LIGHT ASSEMBLIES. PAR 34a (11) | |
| 13 | INSPECT STORAGE BATTERIES FOR DIRT, LOOSE TERMINALS, ELECTROLYTE LEVEL AND SPECIFIC GRAVITY, AND DAMAGED CASES. PAR 34a (12) | |
| 14 | CLEAN AIR FILTERS, BRASS NAME PLATES, DIAL AND METER WINDOWS, JEWEL ASSEMBLIES. PAR 34a(12) | |
| 15 | INSPECT METERS FOR DAMAGED GLASS AND CASES. PAR 34a(13) | |
| 16 | INSPECT SHELTERS AND COVERS FOR ADEQUACY OF WEATHERPROOFING. | |
| 17 | CHECK ANTENNA GUY WIRES FOR LOOSENESS AND PROPER TENSION. | |
| 18 | CHECK TERMINAL BOX COVERS FOR CRACKS, LEAKS, DAMAGED GASKETS, DIRT AND GREASE. PAR 34a (14) | |

| NO. | ITEM | CONDITION |
|---|---|---|
| 19 | ELECTRON TUBES - INSPECT FOR LOOSE ENVELOPES, CAP CONNECTORS, CRACKED SOCKETS: INSUFFICIENT SOCKET SPRING TENSION; CLEAN DUST AND DIRT CAREFULLY; CHECK EMISSION OF RECEIVER TYPE TUBES. PAR 34b (1) | |
| 20 | INSPECT FILM CUT-OUTS FOR LOOSE PARTS, DIRT, MISALIGNMENT AND CORROSION. | |
| 21 | INSPECT FIXED CAPACITORS FOR LEAKS, BULGES, AND DISCOLORATION. PAR 34b (2) | |
| 22 | INSPECT RELAY AND CIRCUIT BREAKER ASSEMBLIES FOR LOOSE MOUNTINGS; BURNED, PITTED, CORRODED CONTACTS; MISALIGNMENT OF CONTACTS AND SPRINGS; INSUFFICIENT SPRING TENSION; BINDING OF PLUNGERS AND HINGE PARTS. PAR 34b (5) | |
| 23 | INSPECT VARIABLE CAPACITORS FOR DIRT, MOISTURE, MISALIGNMENT OF PLATES, AND LOOSE MOUNTINGS. PAR 34b (3) | |
| 24 | INSPECT RESISTORS, BUSHINGS, AND INSULATORS, FOR CRACKS, CHIPPING, BLISTERING, DISCOLORATION AND MOISTURE. PAR 34b (4) | |
| 25 | INSPECT TERMINALS OF LARGE FIXED CAPACITORS AND RESISTORS FOR CORROSION, DIRT AND LOOSE CONTACTS. | |
| 26 | CLEAN AND TIGHTEN SWITCHES, TERMINAL BLOCKS, BLOWERS, RELAY CASES, AND INTERIORS OF CHASSIS AND CABINETS NOT READILY ACCESSIBLE. PAR 34b (6) | |
| 27 | INSPECT TERMINAL BLOCKS FOR LOOSE CONNECTIONS, CRACKS AND BREAKS. PAR 34b (7) | |
| 28 | CHECK SETTINGS OF ADJUSTABLE RELAYS. PAR 34b (8) | |
| 29 | LUBRICATE EQUIPMENT IN ACCORDANCE WITH APPLICABLE DEPARTMENT OF THE ARMY LUBRICATION ORDER. PAR 34b (9) | |
| 30 | INSPECT GENERATORS, AMPLIDYNES, DYNAMOTORS, FOR BRUSH WEAR, SPRING TENSION, ARCING, AND FITTING OF COMMUTATOR. PAR 34b (10) | |
| 31 | CLEAN AND TIGHTEN CONNECTIONS AND MOUNTINGS FOR TRANSFORMERS, CHOKES, POTENTIOMETERS, AND RHEOSTATS. PAR 34b (11) | |
| 32 | INSPECT TRANSFORMERS, CHOKES, POTENTIOMETERS, AND RHEOSTATS FOR OVERHEATING AND OIL-LEAKAGE. PAR 34b(12) | |
| 33 | BEFORE SHIPPING OR STORING - REMOVE BATTERIES. | |
| 34 | INSPECT CATHODE RAY TUBES FOR BURNT SCREEN SPOTS. | |
| 35 | INSPECT BATTERIES FOR SHORTS AND DEAD CELLS. PAR 34b (13) | |
| 36 | INSPECT FOR LEAKING WATERPROOF GASKETS, WORN OR LOOSE PARTS. | |
| 37 | MOISTURE AND FUNGIPROOF. PAR 34b (14) | |

38 IF DEFICIENCIES NOTED ARE NOT CORRECTED DURING INSPECTION, INDICATE ACTION TAKEN FOR CORRECTION. PAR 34b (15)

DA FORM 1 MAY 51 11-239 REPLACES DA AGO FORM 439, 1 DEC 50, WHICH IS OBSOLETE. 16—64382

Figure 16. DA form 11-239

(11) Clean and tighten connections and mountings of transformers, chokes and potentiometers.

(12) Inspect transformers, chokes and potentiometers for overheating.

(13) Inspect for leaking waterproof gaskets and worn or loose parts.

(14) Check adequacy of moisture-fungiproofing treatment (par. 36b).

(15) If deficiencies noted are not corrected during the inspection, indicate what action was taken to correct the deficiencies.

## Section III. LUBRICATION AND WEATHERPROOFING

### 35. Lubrication

Lubrication of mechanical parts of Radio Set AN/VRC-24(XC-2) should be performed only by qualified technicians with proper tools and materials. The dynamotor bearings and the case blower motor bearings require cleaning and lubrication after each 750 hours of operation or once every 60 days whichever occurs first. When lubrication of these units is required, replace them with freshly lubricated spares and return the units to be lubricated to the field maintenance depot. If no spares are available and if it becomes necessary to perform the lubrication procedure at organizational maintenance level consult chapter 7, Field Maintenance Instructions.

### 36. Weatherproofing

a. General. Signal Corps equipment, when operated under severe climatic conditions such as prevail in tropical, arctic,and desert regions, requires special treatment and maintenance. Fungus growth, insects, dust, corrosion, salt spray, excessive moisture, and extreme temperatures are harmful to most materials.

b. Tropical Maintenance. A special moistureproofing and fungiproofing treatment has been devised which, if properly applied, provides a reasonable degree of protection. Moisture and Fungus Proofing Kit MK-2/GSM should be used. This treatment is fully explained in TB SIG 13, Moistureproofing and Fungiproofing Signal Corps Equipment, and TB SIG 72, Tropical Maintenance of Ground Signal Equipment.

Caution: Mask all variable capacitors, open switches, relay contacts and tuned uhf circuits whose electrical performance is impaired by lacquer.

c. Arctic Maintenance. Special precautions necessary to prevent poor performance or total operational failure of equipment in extremely low temperatures are fully explained in TB SIG 66, Winter Maintenance of Signal Equipment at Low Temperatures.

d. Desert Maintenance. Special precautions necessary to prevent equipment failure in areas subject to extremely high temperatures, low humidity, and excessive sand and dust are fully explained in TB SIG 75, Desert Maintenance of Ground Signal Equipment.

### 37. Rustproofing and Painting

a. When the finish on a panel has been badly scarred or damaged, rust and corrosion can be prevented by touching up bared surfaces. Use #00 or #000 sandpaper to clean the surface down to the bare metal; obtain a bright smooth finish.

Caution: Do not use steel wool. Minute particles frequently enter the case and cause harmful internal shorting or grounding of circuits.

b. When a touch-up job is necessary, remove loose paint and apply paint with a small brush. Remove rust from the case by cleaning corroded metal with solvent (SD). In severe cases it may be necessary to use solvent (SD) to soften the rust and to use sandpaper to complete the preparation for painting. Paint will be authorized and consistent with existing regulations. Where a front panel marking has been obliterated, use a fine brush and white enamel to replace the marking.

## Section IV. TROUBLE SHOOTING AT ORGANIZATIONAL MAINTENANCE LEVEL

### 38. General

The trouble shooting and repair work that can be performed at the organization level (operators and repairmen) is necessarily limited in scope by the tools, test equipment, and replaceable parts issued. Accordingly, trouble shooting is based on the performance of the equipment and the use of the senses in determining which part is at fault.

### 39. Visual Inspection

a. Failure of this equipment to operate properly usually will be caused by one or more of the following faults:

(1) Burned-out fuse.

(2) Defective tube.

(3) Faulty input connections.

(4) Faulty output connections.

(5) Faulty power cable.

(6) Faulty interconnecting cable.

(7) Line voltage low or not supplied.

(8) Grounded or broken antenna or antenna leadin.

b. When failures are encountered and the cause is not immediately apparent, check as many of the above items as is practicable before starting a detailed examination of the individual components of the set. If possible, obtain information from the operator of the equipment regarding performance at the time the trouble occurred.

### 40. Trouble Shooting by Using Equipment Performance Check List

a. General. The equipment performance check list (par. 41) will help the repairman locate trouble in the equipment. The list gives the items to be checked, the conditions under which the items are checked, the normal indications of correct operation, and the corrective measures to be taken. To use this list, follow the items in numerical sequence.

b. Action or Condition. For some items, the information given in the action or condition column consists of the settings of switches and controls under which the item is to be checked. For other items, it represents an action that must be taken to check the normal indication given in the normal indications column.

c. Normal Indications. The normal indications listed include the visible and audible signs that the repairman should perceive when he checks the items. If the indications are nor normal, the operator or repairman should apply the recommended corrective measures.

d. Corrective Measures. The corrective measures listed are those the operator or repairman can make without turning in the equipment for repairs. A reference in the table to a paragraph in chapter 7 indicates that the trouble cannot be corrected during operation and that trouble shooting by an experienced repairman is necessary. If communication must be maintained, and the equipment is not completely inoperative, the operator must maintain it in operation as long as possible.

41. Equipment Performance Check List

| | Item no. | Unit | Item | Action or condition | Normal indication | Corrective measures |
|---|---|---|---|---|---|---|
| | 1 | | Cabling | All connections properly made (par. 15). | | |
| | 2 | | Antenna | Leadin connected to ANT. jack. Antenna in place. | | |
| | 3 | Receiver-transmitter | SQUELCH control | Set to OFF. | | |
| | 4 | Receiver-transmitter | VOLUME control | Set to approximate midposition of range. | | |
| | 5 | Receiver-transmitter | CHAN SEL switch | Set to desired preset channel. | | |
| | 6 | Receiver-transmitter | METER switch | Set to LINE V. | | |
| S | 7 | Remote control unit | SELECTOR switch | Set to position 3. | | |
| T | | | | | | |
| A | 8 | Remote control unit | RADIO-INT RADIO switch | Set to INT (normal position). | | |
| R | 9 | Remote control unit | VOL control | Set to midpoint of range. | | |
| T | | | | | | |
| | 10 | Receiver-transmitter | Chest set and headset-microphone | Connect chest set to audio receptacle. Plug headset-microphone into chest set. | | |
| | 11 | Receiver-transmitter | POWER switch | Operate momentarily to the ON position. | Dial lamps light. | Check polarity of power source<br>Check lamps I702 and I703.<br>Check LINE fuse F704 and FIL fuse F703.<br>Refer to par. 74 |
| | | Remote control unit | | | Pilot lamp in remote control unit lights. | Check pilot lamp.<br>Check cables to remote control par. 73 |

41. Equipment Performance Check List (Cont)

| | Item no. | Unit | Item | Action or condition | Normal indication | Corrective measures |
|---|---|---|---|---|---|---|
| START | 11 (cont) | | | | | Trouble shoot remote control units. |
| | | Receiver-transmitter | | | SQUELCH indicator lights. | Check indicator lamp I701<br>Refer to par. 74 |
| | | Receiver-transmitter | | | Meter reads in red band center scale. | Check vehicular battery.<br>Refer to par. 74 |
| EQUIPMENT PERFORMANCE | 12 | Receiver-transmitter | Frequency selector | Select each preset channel in turn. Leave set tuned to an active channel. | Frequency selector tunes set to each preset channel frequency. Preset channel number and frequency visible through windows in front of receiver-transmitter. | Check pin position on memory drum par. 17. |
| | 13 | Receiver-transmitter | METER switch | Set to LOW B+. | Meter reads in red band center scale. | Check 125 v B+ fuse F702.<br>Refer to par. 74 |
| | | | | Set to HIGH B+. | Meter reads in red band center scale. | Check 300 v B+ fuse F701<br>Refer to par. 74 |
| | | | | Set to S-METER and listen for signal in headset. | Meter reading proportional to strength of received signal. Signal heard in headset. | If signal is heard and there is no indication on the meter refer to par. 76<br>If no signal is heard and the meter indicates a signal check V504, V804, V805, V806, V807, and V808. |

41. Equipment Performance Check List (Cont)

| | Item no. | Unit | Item | Action or condition | Normal indication | Corrective measures |
|---|---|---|---|---|---|---|
| | 13 (cont) | | | | | If meter reads full scale and there is no signal in the headset, check V302.<br><br>If no signal is heard and there is no indication on meter go to item 18.<br><br>Refer to par. 74 |
| EQUIPMENT PERFORMANCE | 14 | Remote control | | Listen for signal in headset. | Signal heard in headset. | Check cables par. 73<br><br>Trouble shoot remote control unit par. 73 |
| | 15 | Receiver-transmitter and remote control unit | VOLUME control | Rotate control in one direction and then the other. | Signal or noise in headset increases and decreases | Check control for defects or loose broken leads. |
| | 16 | Receiver-transmitter | SQUELCH control | Turn slowly clockwise until noise is squelched. Tune set to all preset channels and reset squelch control if necessary to obtain squelch action on all channels. Leave control at the lowest setting that will give squelch action on all channels. | When no signal is being received, no noise in headset and SQUELCH indicator is out. When signal is received, SQUELCH indicator lights and signal is heard in headset. | If noise disappears as soon as SQUELCH control is out of the OFF position check V801.<br><br>If noise decreases but no squelch action takes place check V801.<br><br>Refer to par. 76 |
| | 17 | Receiver-transmitter | SQUELCH DISABLE-PUSH switch and squelch indicator | Press SQUELCH DISABLE-PUSH button to disable squelch. | SQUELCH indicator lights, signal or noise heard in headset. | Check V801.<br><br>Refer to par. 76 |
| | 18 | Receiver-transmitter | Chest set RADIO-INT button | Lock in RADIO position. | | |

41. Equipment Performance Check List (Cont)

| | Item no. | Unit | Item | Action or condition | Normal indication | Corrective measures |
|---|---|---|---|---|---|---|
| EQUIPMENT PERFORMANCE | 19 | Receiver-transmitter | METER switch | Set to DVR $I_b$ and operate the push-to-talk switch on chest set. | Meter reads in red band center scale. | Check V104<br>Refer to par. 76 |
| | | | | Set to PA $I_g$ and operate the push-to-talk switch on chest set. | Meter reads in red band center scale. | Check V105.<br>Refer to par. 76 |
| | | | | Set to PA $I_b$ and operate the push-to-talk switch on chest set. | Meter reads in red band center scale. | Check V105.<br>If normal indications were obtained for items 14 through 17 check V101 and V304.<br>If normal indications could not be obtained for item 13 but normal indication was obtained for item 19 check V303, V501, V502 and V503.<br>If normal indication was not obtained for either item 13 or 19 go to item 25.<br>Refer to par. 76 |
| | 20 | Receiver-transmitter | METER switch | Set to POWER and operate the push-to-talk switch on chest set. | Meter reads in red band center scale. | Check antenna and leadin.<br>Refer to par. 76 |
| | 21 | Receiver-transmitter | METER switch | Set to SWR and operate the push-to-talk switch on chest set. | Meter reads below red band center scale. | Check antenna and leadin.<br>Refer to par. 76 |

41. Equipment Performance Check List (Cont)

| | Item no. | Unit | Item | Action or condition | Normal indication | Corrective measures |
|---|---|---|---|---|---|---|
| EQUIPMENT PERFORMANCE | 22 | Receiver-transmitter | METER switch | Set to % MOD. | Meter reading fluctuates with speech, peaking in red band center scale. Sidetone heard in headset. | Check microphone and cord.<br><br>If normal indication was obtained for item 13 check V803.<br><br>If abnormal indication was obtained for item 13 check V802, V804, V805, V806, V807, and V808.<br><br>If meter reading is high and fluctuating, and sidetone is heard, check V802.<br><br>Refer to par. 76 |
| | 23 | Remote control unit | RADIO-INT-RADIO switch | Lock in RADIO position<br><br>Push the RADIO-INT button and operate the push-to-talk switch on the chest set.<br><br>Speak into the microphone. | Sidetone heard in headset. | Check interconnecting cables par.73.<br><br>Trouble shoot remote control unit par. 73 |
| | 24 | Receiver-transmitter | Chest set RADIO-INT button | Release lock and permit to return to INT position. | | |
| | 25 | Receiver-transmitter | Interphone circuits | Operate the push-to-talk switch on the chest set and speak into the microphone. | Sidetone heard in headset.<br><br>Signal heard at remote control unit. | Sidetone but no signal at remote unit. Check interconnecting cables par. 73<br><br>If abnormal reading was obtained for items 13 and 19, check V802, V803, V804, V805, V806, V807, and V808. |

41. Equipment Performance Check List (Cont)

| | Item no. | Unit | Item | Action or condition | Normal indication | Corrective measures |
|---|---|---|---|---|---|---|
| | | | | | | Refer to par. 76 |
| | 26 | Remote control unit | RADIO-INT-RADIO switch | Release lock and permit to return to INT position. Operate push-to-talk switch on chest set and speak into the microphone. | Sidetone in headset signal heard at receiver-transmitter position. | Check microphone.<br>Check interconnecting cables par. 73.<br>Trouble shoot remote control unit par. 73. |
| S T O P | 27 | Remote control unit | POWER switch | Operate momentarily to the OFF position. | Pilot light extinguishes. | Check interconnecting cables par. 73.<br>Trouble shoot remote control unit par. 73. |
| | | | | Operate momentarily to the ON position. | Pilot light lights. | |
| | 28 | Receiver-transmitter | POWER switch | Operate momentarily to the OFF position. | Dial lights extinguish<br>Power is removed from set. | Refer to par. 76. |

42. General Sectionalizing Techniques

a. When an abnormal indication is obtained during routine operation or checking of the equipment, the nature of the abnormal indication may not reveal the defective unit or part. The following procedure will assist in sectionalizing trouble to a unit. When the defective unit is determined and the procedures given in the equipment performance check list and in paragraph 43 below are insufficient to rectify the trouble, trouble shooting at a field maintenance level is required.

b. When operation is abnormal at the remote control unit, check for operation at the panel of the receiver-transmitter. If normal results are obtained, the trouble is probably in the mounting or in the cable which connects the mounting with the remote control unit. If operation at the panel is also abnormal, the trouble is probably in the receiver-transmitter.

43. Checking Tubes in Receiver-Transmitter RT-323(XC-2)/VRC-24

a. Burned out tube heaters can be quickly located by visual inspection using the procedure given below.

(1) Remove the receiver-transmitter from its case.

(2) Apply 26.4 vdc to P1-E and P1-s, and ground P1-A.

(3) Turn the set on.

(4) Inspect all tubes, (figure 17) removing shields if necessary and replace any tubes whose heaters are not lit.

b. If the above procedures do not locate the defective tube, test all the receiving type tubes with Tube Tester TB-7/U. Follow the instructions supplied with the tube tester.

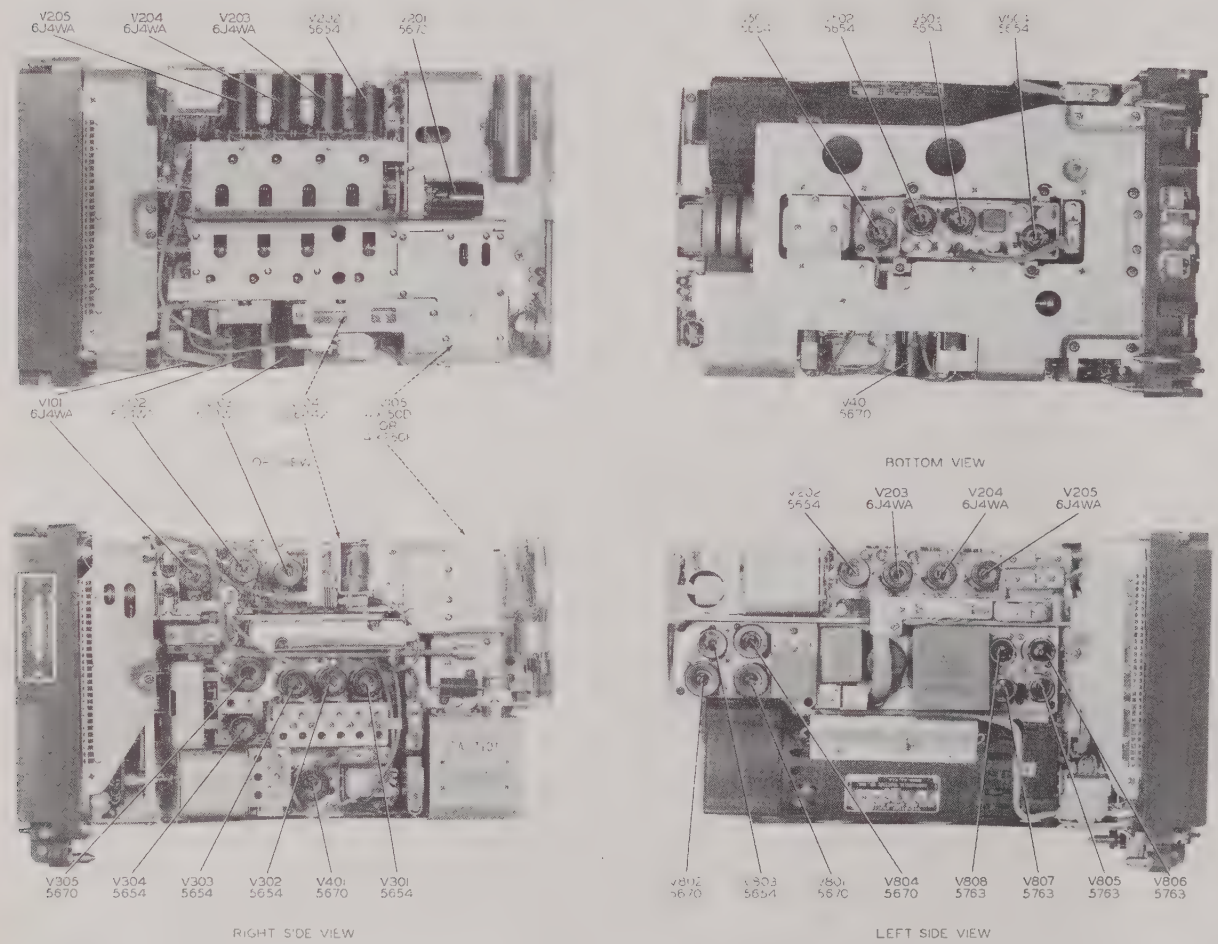



Figure 17. Tube Location

CHAPTER 5

AUXILIARY EQUIPMENT

44. Purpose

Radio Set AN/VRC-24(XC-2) is primarily a vehicular radio set using the vehicular electrical system as a power source. However by using the Ac-Dc Conversion Kit the set may be operated as a vehicular set using the vehicular electrical system as a power source while in motion and an external 115/230 vac source while parked. The Ac-Dc Conversion Kit consists of Case CY-1972(XC-2)/VRC-24, Power Supply PP-1494(XC-2)/VRC-24, dc case blower, ac case blower, receiver-transmitter ac blower, power supply extension cable, receiver-transmitter extension cable and ac power cable. In addition, the dynamotor in Receiver-Transmitter RT-323(XC-2)/VRC-24 may be replaced by the ac blower furnished with the kit and the set may be rack mounted and operated on 115/230 vac only, for fixed station application. Figure 18 shows Receiver-Transmitter RT-323(XC-2)/VRC-24 and Power Supply PP-1494(XC-2)/VRC-24 in Case CY-1972(XC-2)/VRC-24.

Figure 18. Receiver-Transmitter RT-323(XC-2)/VRC-24 and Power Supply PP-1494(XC-2)/VRC-24 in Case CY-1972(XC-2)/VRC-24

45. Description and Data

a. Description of Case CY-1972(XC-2)/VRC-24 (figure 19). Case CY-1972(XC-2)/VRC-24 is a heat exchanger case with two compartments, one for the power supply and one for the receiver-transmitter. The left hand compartment is for the power supply and also contains the case blower (the dc blower is shown installed in figure 19). Jack J1602 located at the rear of the compartment contains all of the external connections to the power supply. Jack 1601 at the rear of the right hand compartment contains the connections for the receiver-transmitter. Jacks on the rear of the case provide connections for dc power, ac power, remote control, and for connection to other systems. Ports on the left and right hand sides of the case provide for air intake and exhaust. Reversible, louvered plates cover the ports for mobile applications. When the plates are installed with the louvers down the ports are open and the set is splash proof. When the plates are turned so that the louvers are up the ports are sealed and the set is immersion proof.

Caution: Do not attempt to operate the set with the ports sealed, over-heating with consequent damage to components may result.

Figure 20 shows the ac blower which is installed in the case when rack mounted for ac only operation. Figure 21 shows the ac blower which is installed in the receiver-transmitter in place of the dynamotor for ac operation.

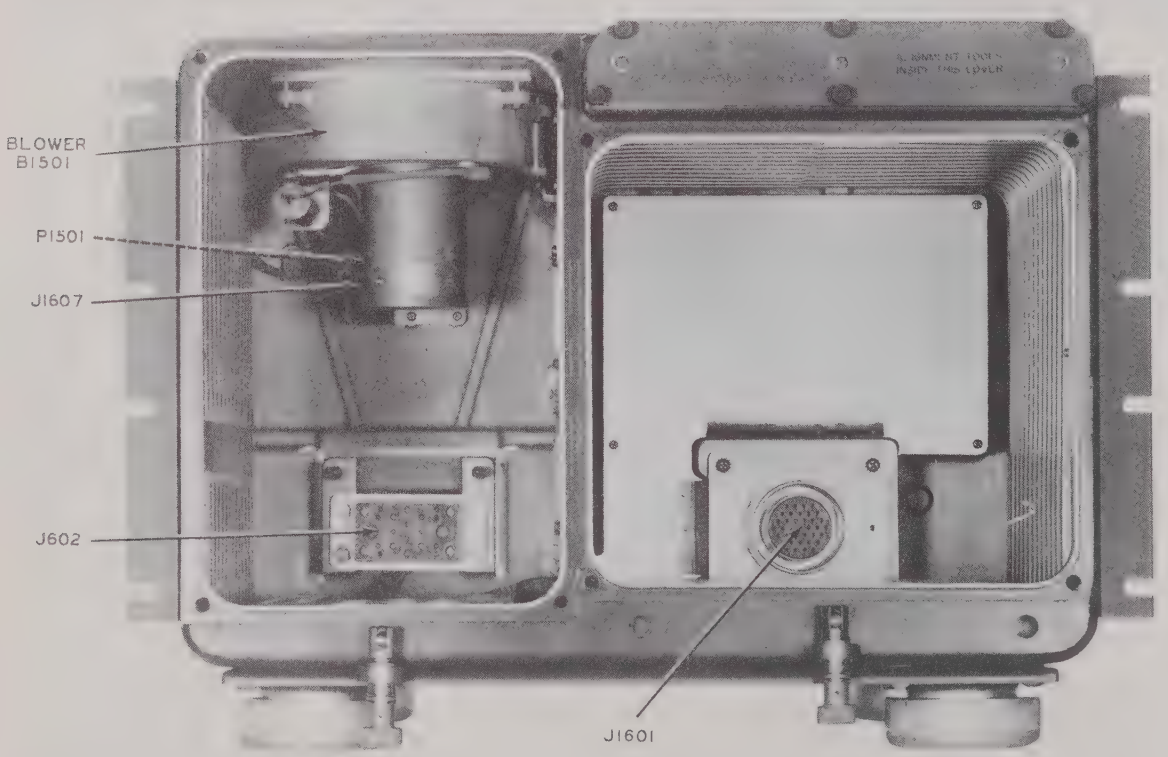



Figure 19. Case CY-1972(XC-2)/VRC-24

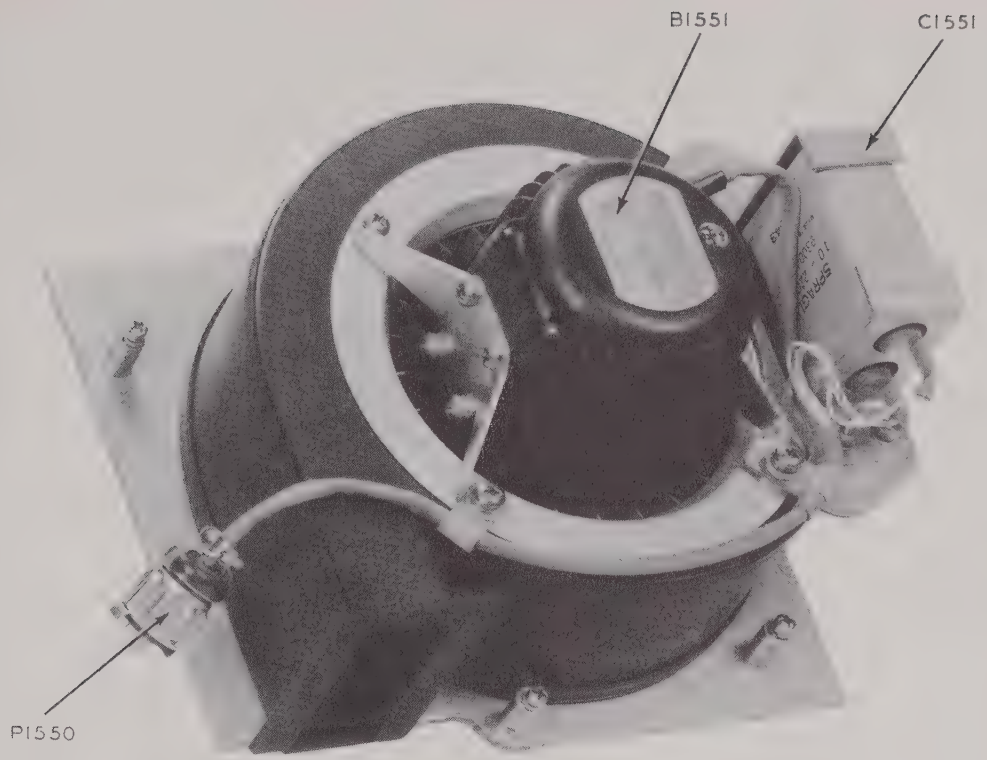



Figure 20. AC Cabinet Blower

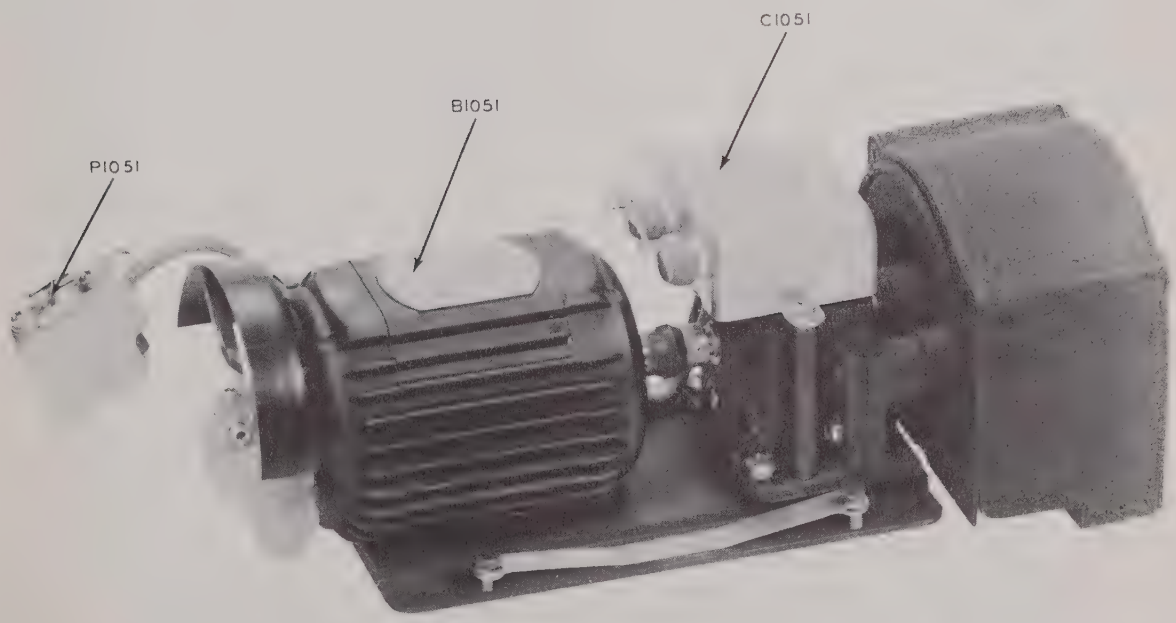



Figure 21. Receiver-Transmiter AC Blower

b. Description of Power Supply PP-1494(XC-2)/VRC-24. Power Supply PP-1494(XC-2)/VRC-24 contains circuits for switching from a dc power source to an ac power source and for switching from 115 vac input power to 230 vac input power. For ac operation the power supply provides 26 vdc for blower motors, dynamotor (operating as a blower only), and for relay control circuits. The power supply also furnishes -125 dc, +300 vdc, and -30 vdc to take the place of the voltages supplied by the dynamotor when the set is operated on 26.4 vdc. In addition to the above the power supply provides 26 vac, 18.9 vac, 12.6 vac, and 6.3 vac for the receiver-transmitter filament circuits. When the receiver-transmitter is used with Power Supply PP-1494(XC-2)/VRC-24, P2 in the receiver-transmitter must be reversed. Jumpers in P2 change the wiring to the rear plug for ac-dc operation.

46. Packaging Data

For domestic shipment the Ac-Dc Conversion Kit is packaged in a corrugated fiberboard carton. Power Supply PP-1494(XC-2)/VRC-24 and the dc blower are fastened in place in Case CY-1972(XC-2)/VRC-24. The ac blower, the receiver-transmitter ac blower, the ac power cable, the power supply extension cable, and the receiver-transmitter extension cable are individually padded with Kimpak, wrapped in heavy paper, and packed in the receiver-transmitter compartment of Case CY-1972(XC-2)/VRC-24 is sealed in heavy paper, padded with air-cell padding top, bottom and two sides, and placed in the fiberboard carton. Plywood pallets over pads of Kimpak protect the front and rear of the case. The carton is sealed with tape. A protective envelope fastened to the top of the carton contains the packing list.

47. Table of Components

| Component | Required Number | Height (in) | Width (in) | Length (in) | Unit Weight (lb) |
|---|---|---|---|---|---|
| Case CY-1972(XC-2)/VRC-24 w/DC Blower | 1 | 13-13/16 | 19 | 20-7/8 | 48 |
| Power Supply PP-1494(XC-2)/VRC-24 | 1 | 12 | 7-1/4 | 19-1/4 | 60 |
| Dc Case Blower | 1 | 4-3/4 | 7 | 6-1/2 | 5.2 |
| Ac Case Blower | 1 | 4-1/2 | 7 | 6-1/4 | 5-1/2 |
| Receiver-Transmitter Ac Blower | 1 | 3-1/2 | 3-1/4 | 9-1/2 | 4.37 |
| Ac Power Cable | 1 | | | 144 | 2 |
| Power Supply Extension Cable | 1 | | | | 1.5 |
| Receiver-Transmitter Extension Cable | 1 | | | | 1.6 |
| Total | 8 | | | | |

Note. This list is for general information only. See appropriate supply publications for information pertaining to requisition of spare parts.

48. Installation

When the Ac-Dc Conversion Kit is used two types of installation are possible. Subparagraph a. below describes the mobile installation and subparagraph b. describes the fixed rack mounted installation. For the mobile installation the rack mounting brackets are removed and the shockmounts and louvered plates installed. For the fixed, rack mounted installation the shockmounts and louvered plates are removed and the rack mounting brackets installed.

a. Mobile Installation.

(1) Refer to figure 22, locate and drill the four mounting holes in a location that provides the specified clearance plus approximately 18 inches in front of the case for installation and removal of the power supply and the receiver transmitter, and approximately 6 inches at the rear of the case for insertion and removal of power and control cable connectors.

(2) Bolt the case in position with four 3/9-16 NC screws.

(3) Slide the power supply into the left hand compartment and fasten in place with the injector-ejector clamp at the front of the case and tighten the four front panel retaining screws.

(4) Slide the receiver transmitter (with P2 reversed as directed by the printed instructions on the chassis beside the plug) into the right hand compartment and fasten in place with the injector-ejector clamp on the front of the case and tighten the four front panel retaining screws.

b. Fixed, Rack Mounted Installation.

(1) Remove the dc blower from the case and install the ac blower shown in figure 20.

(2) Refer to figure 22 and mount the case in a rack of proper dimensions.

(3) Remove the dynamotor from the receiver-transmitter and install the ac blower shown in figure 21 in its place.

(4) Repeat steps (3) and (4) of subparagraph a. above.

c. Interconnecting Cable Connections.

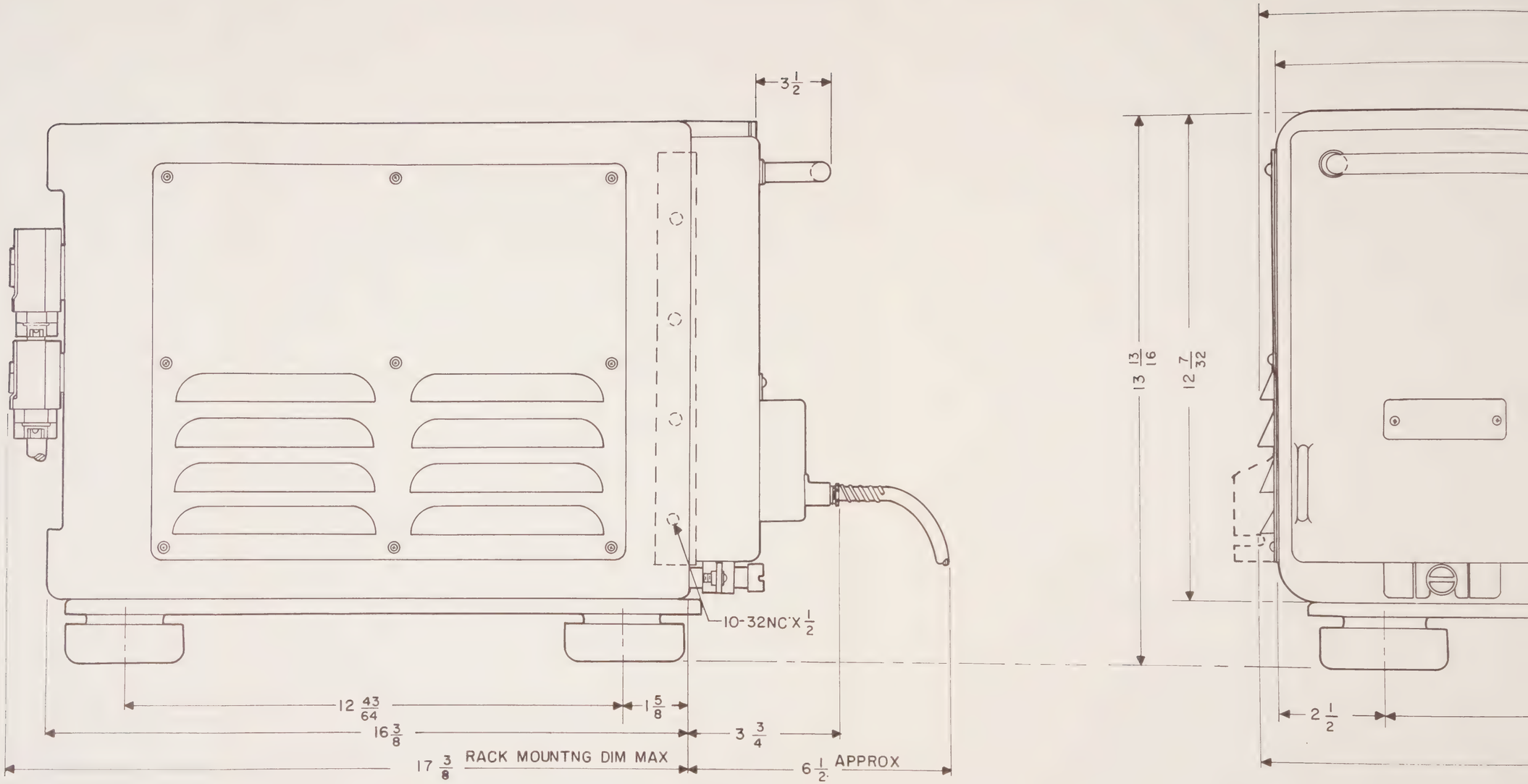
(1) P2101 installation. To use Control C-1439(XC-2)/VRC-24, install plug P2101 on the end of the interconnecting cable in accordance with the following chart and plug into jack J1604 on the rear of Case CY-1972(XC-2)/VRC-24 (figure 23).

(2) Interconnecting cable connections to P2101.

| Terminal | Wire Code | | Function |
|---|---|---|---|
| | Color | Tracer | |
| A | Black | None | Ground |
| B | Red | Two ridges | Pilot light |
| C | Black | One ridge | Interphone control |
| D | Black | Two ridges | Radio control |
| E | Yellow | None | Squelch ON-OFF |
| F | Yellow | One ridge | Squelch sensitivity |

(2) Interconnecting cable connections to P2101. (Cont)

| Terminal | Wire Code | | Function |
|---|---|---|---|
| | Color | Tracer | |
| H | Yellow | Two ridges | Squelch light |
| J | Red | One ridge | Channel selector |
| K | Red | None | Channel selector |
| L | White | Two ridges | Channel selector |
| M | White | One ridge | Channel selector |
| N | Blue | None | 50 mw audio |
| P | Blue | One ridge | Remote audio |
| R | Blue | Two ridges | Retransmit audio |
| S | Green | None | 26 vdc ON-OFF |
| T | White | Inner core | Radio microphone |
| U | Black | Inner core | Interphone microphone |
| V | Orange | None | ON-OFF control |
| W | Orange | One ridge | -- |
| X | Green | One ridge | -- |
| Y | Green | Two ridges | -- |
| Z | Grey | One ridge | -- |
| a | Grey | None | Af input-return |
| b | Brown | Two ridges | -- |
| c | Brown | One ridge | -- |
| d | White | None | Channel selector |
| f | Brown | None | Loudspeaker |
| i | Orange | Two ridges | -- |




NOTE:

1. ALLOW MINIMUM CLEARANCE OF 1/2 INCH ON ALL SIDES IN MOBILE INSTALLATION.

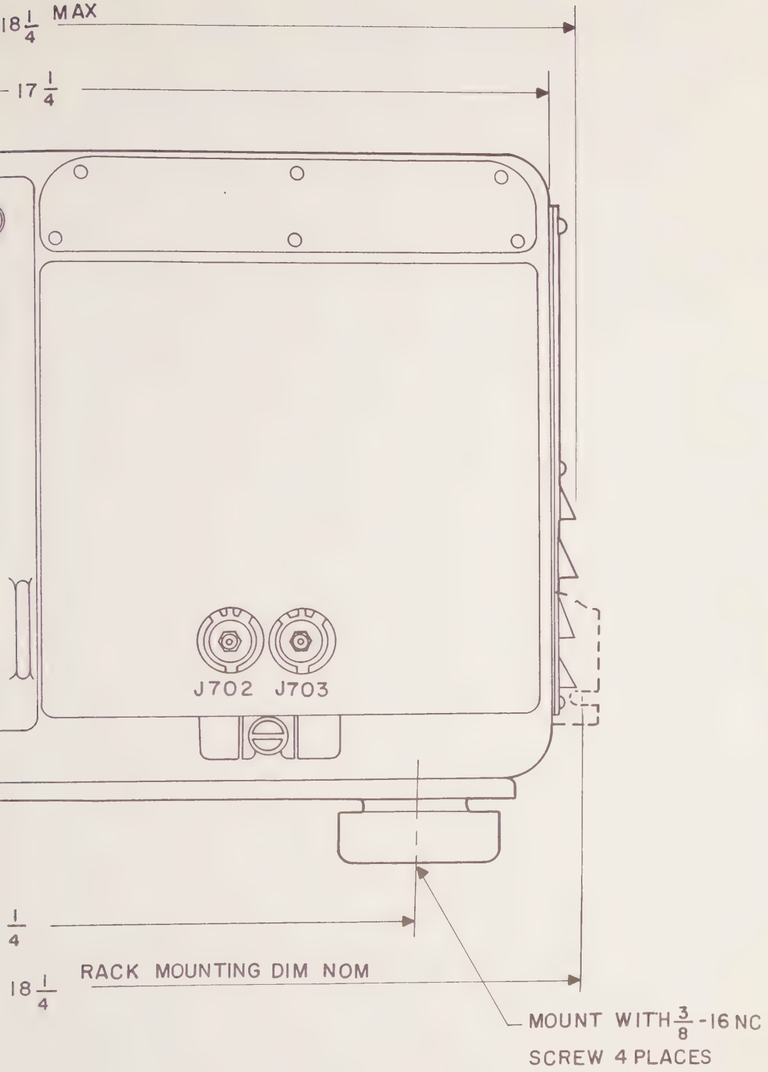



Figure 22. Outline and Mounting Dimensions, Case CY-1972(XC-2)/VRC-24

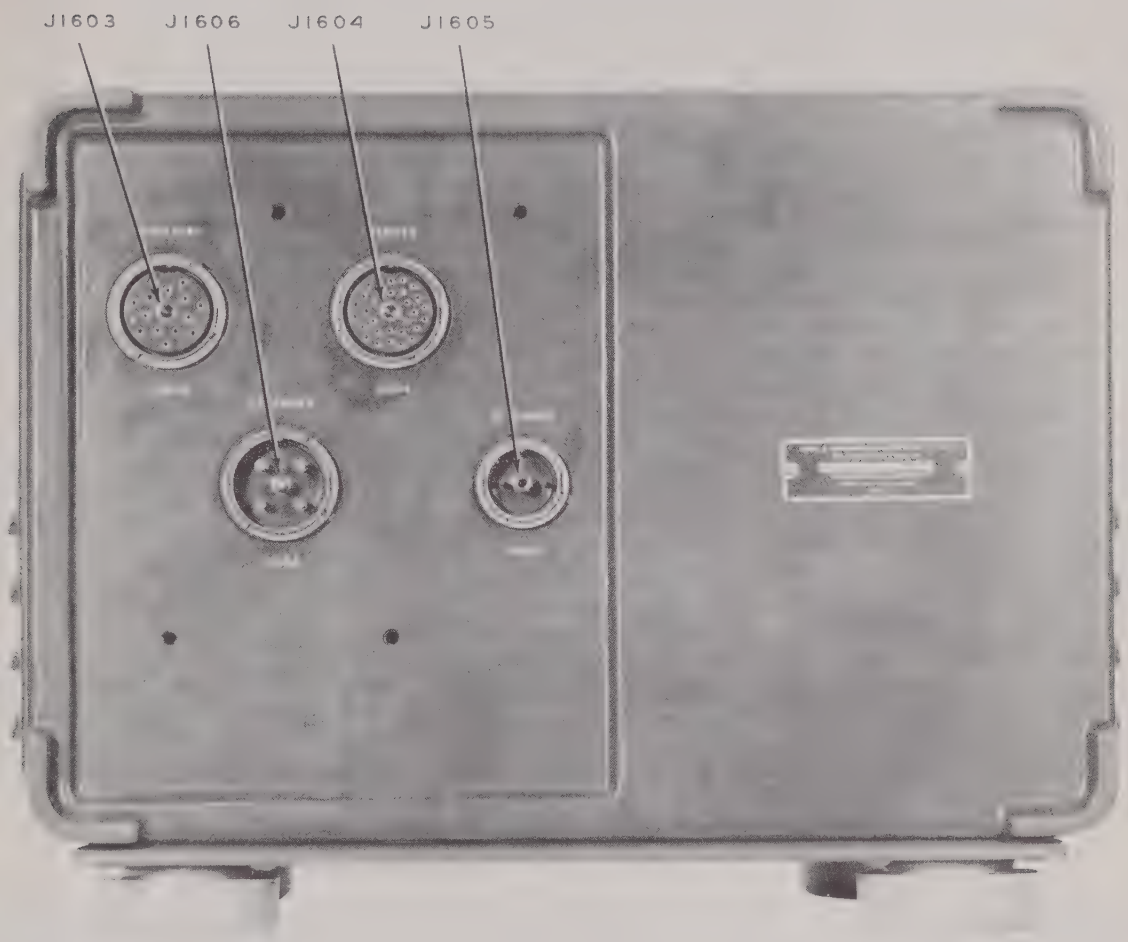



Figure 23. Case CY-1972(XC-2)/VRC-24, rear view

d. Power Connections. Connect power cables for the type of power to be used (W2001 for ac or W2051 for dc) to an appropriate power source and to the jacks provided on the rear of Case CY-1972(XC-2)/VRC-24 (figure 23). See figure 24 for terminal information.

49. Operation

Operation of Receiver-Transmitter RT-323(XC-2)/VRC-24, when installed in Case CY-1972(XC-2)/VRC-24, is identical to that described in chapter 3 except that the POWER SELECTOR switch on the front panel of Power Supply PP-1494(XC-2)/VRC-24 (figure 25) must be set to the type of power used (ac or dc) and for ac operation the voltage selector switches S1406, S1407, and S1408 on the power supply chassis (figure 26) must be set to proper line voltage (115 vac or 230 vac).

50. Theory of Power Supply PP-1494(XC-2)/VRC-24

a. General. Power Supply PP-1494(XC-2)/VRC-24 supplies all operating voltages to Receiver-Transmitter RT-323(XC-2)/VRC-24 when the POWER SELECTOR switch is in the AC position. When the POWER SELECTOR switch is in the DC position, switches in the power supply change connections to the receiver-

transmitter so that filaments, relays, and dynamotor are supplied from the 26.4 vdc input and B+ and bias voltages are supplied by the dynamotor. Power relay K3 in the receiver-transmitter is inoperative when the unit is in the ac-dc case and power relay K1401 in the power supply controls the primary power.

b. Circuit Theory. Figure 24 is a schematic diagram of Power Supply PP-1494(XC-2)/VRC-24 and Case CY-1972(XC-2)/VRC-24 plus a simplified schematic of affected circuits in Receiver-Transmitter RT-323(XC-2)/VRC-24. Connections are shown as they are when plug P2 is reversed for ac-dc operation. When the power supply is operated from an ac power source, three transformers and four rectifier circuits provide all operating voltages for the receiver-transmitter. The primaries of the transformers consist of two windings each. When the set is operated from 115 vac the two primary windings of each transformer are connected in parallel by switches S1406, S1407, and S1408. When the set is operated from 230 vac switches S1406, S1407, and S1408 connect the two primary windings of each transformer in series. Transformer T1403 in conjunction with rectifier CR1408 provides 26 vdc for the ON-OFF control circuits. CR1408 is a full wave bridge rectifier composed of selenium rectifiers. C1406 filters the output of CR1408. One secondary winding of T1401 in conjunction with rectifiers CR1401 and CR1402 provides 300 vdc B+. CR1401 and CR1402 each consist of eight germanium diodes connected to form a full wave bridge rectifier. Four rectifiers in series form each leg of the bridge and the voltages across the rectifiers are equalized by resistors R1402, R1403, R1404, R1405, R1406, R1407, R1408 and R1409. Inductors L1401, and L1402 in conjunction with capacitors C1401 and C1402 filter the output of CR1401 and CR1402. The other secondary winding of T1401 in conjunction with rectifiers CR1403, CR1404, CR1405, and CR1406 provides 26 vdc for the dynamotor (operating as a blower only) and relays. Rectifiers CR1403, CR1404, CR1405, and CR1406 are high current germanium or silicon diodes connected to form a full wave bridge rectifier circuit. One secondary winding of transformer T1402 supplies 26 vac, 18.9 vac, 12.6 vac, and 6.3 vac for the receiver-transmitter filament circuits. The other secondary winding in conjunction with CR1407 provides 125 vdc B+ and -30 vdc bias. Inductors L1403 and L1404 and capacitors C1403, C1404, and C1405 filter the output of CR1407. Rectifier CR1407 consists of eight germanium diodes in a full wave bridge circuit. Each leg of the bridge consists of two diodes connected in series. When the POWER SELECTOR switch is in the DC position, switches S1401, S1402, S1403, S1404, and S1405 disconnect the internal ac operated power supplies described above and make the necessary connections to operate the receiver-transmitter as an all dc unit from a 26.4 vdc source. Relay K1401 controls application of power to the receiver-transmitter. Selenium rectifier CR1409 prevents operation of relay K1401 if the polarity of primary power source is incorrect.

51. Maintenance

a. Isolation of Troubles. When the radio set fails to function properly first apply the sectionalizing techniques outlined in chapters 4 and 7. If the fault is found to be somewhere other than in the receiver-transmitter make continuity checks on the wiring of Case CY-1972(XC-2)/VRC-24 (see figure 24). If no fault is found in the case wiring make voltage and resistance measurements on Power Supply PP-1494(XC-2)/VRC-24 to isolate the defective component. Paragraph b. below lists voltages and resistances as measured on a normal set. The values listed are nominal and may differ slightly from those found in another set. Unless measured values differ by more than 10 percent under normal conditions no corrective measures are necessary.

b. Voltage and Resistance Measurements. For the following voltage measurements both the ac input power line and the dc input power line were connected. The ac line voltage was 115 volts and the dc line voltage was 26.4. All voltages were measured with a vacuum tube voltmeter from the point indicated to ground unless otherwise specified. Resistance measurements were taken with all power and loads disconnected from the power supply unless otherwise specified.

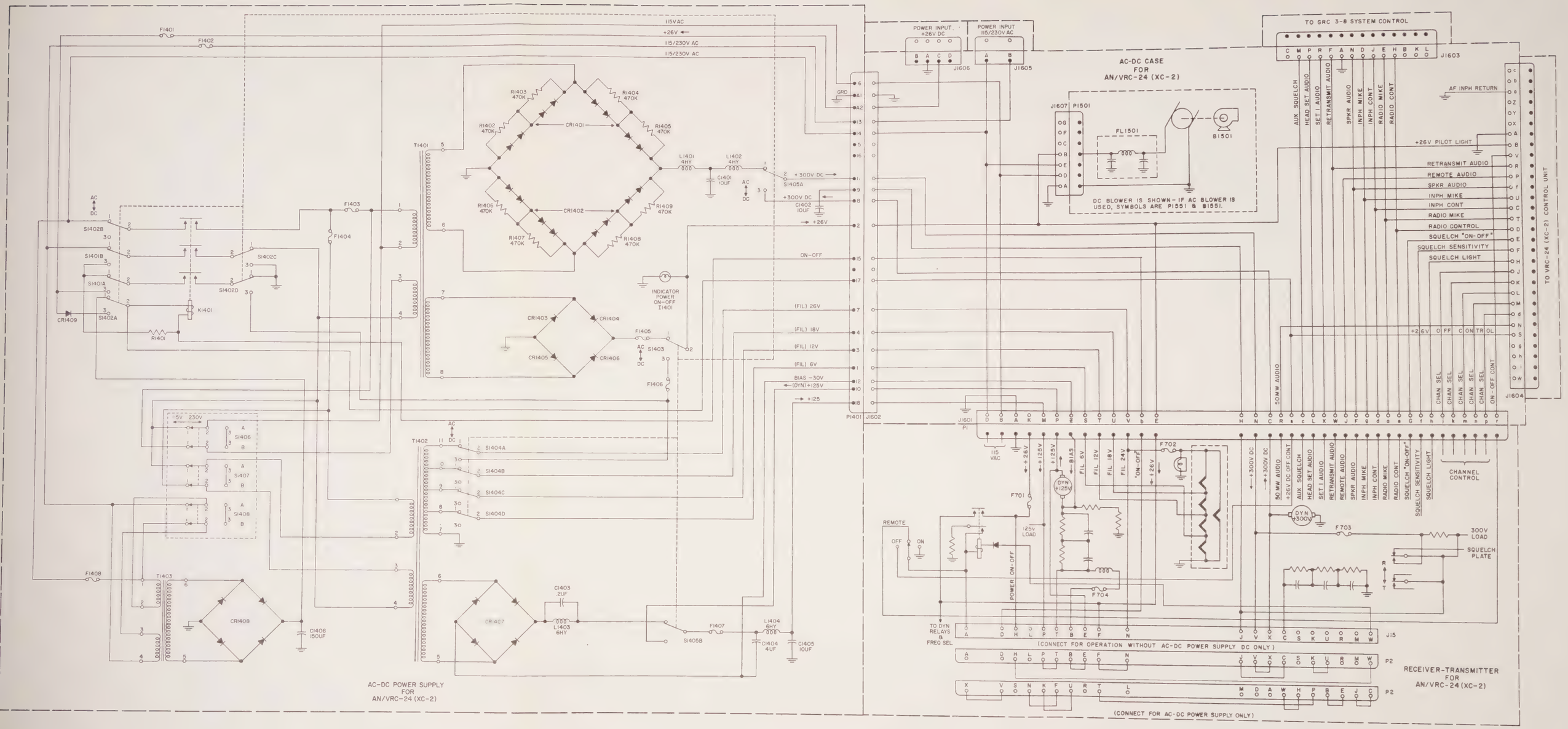



Figure 24. Case CY-1972(XC-2)/VRC-24, schematic diagram

| Plug Transformer or Choke | Pin or Terminal | AC Operation | | | DC Operation | | |
|---|---|---|---|---|---|---|---|
| | | Voltage Transmit | Voltage Receive | Resist-ance | Voltage Transmit | Voltage Receive | Resist-ance |
| P1401 | A1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | A2 | 26.4 vdc | 26.4 vdc | Inf | 26.4 vdc | 26.8 vdc | Inf |
| | 1 | 6.3 vac | 6.3 vac | 0.1 | 6.1 vdc | 6.2 vdc | Inf |
| | 2 | 27 vdc | 27.8 vdc | 150 | 25.8 vdc | 26.2 vdc | 150 |
| | 3 | 12.2 vac | 12.2 vac | 0.1 | 11.7 vdc | 12.0 vdc | Inf |
| | 4 | 18.8 vac | 18.8 vac | 0.2 | 17.8 vdc | 18.2 vdc | Inf |
| | 5 | NC | NC | NC | NC | NC | NC |
| | 6 to 14 | 115 vac | 115 vac | Inf | 115 vac | 115 vac | Inf |
| | 7 | 26.5 vac | 26.5 vac | 0.25 | 25.6 vdc | 26 vdc | Inf |
| | 8 | 350 vdc | 358 vdc | Inf | 302 vdc | 335 vdc | Inf |
| | 9 | 292 vdc | 270 vdc | 20 meg | 300 vdc | 280 vdc | 20 meg |
| | 10 | 155 vdc | 158 vdc | Inf | 135 vdc | 140 vdc | 40 meg |
| | 11 | 295 vdc | 325 vdc | 42 K | 300 vdc | 332 vdc | Inf |
| | 12 | -24.5 vdc | -29.5 vdc | Inf | -22.5 vdc | -29 vdc | Inf |
| | 13 to 14 | 115 vac | 115 vac | Inf | 115 vac | 115 vac | Inf |
| | 14 to 13 | 115 vac | 115 vac | Inf | 115 vac | 115 vac | Inf |
| | 15 | 5.5 vdc | 5.8 vdc | 20 meg | 4.95 vdc | 5 vdc | Inf |
| | 16 | NC | NC | NC | NC | NC | NC |
| | 17 | 29 vdc | 29 vdc | 20 meg | 24.3 vdc | +25 vdc | Inf |
| | 18 | 127 vdc | 125 vdc | Inf | 120 vdc | 125 vdc | Inf |
| T1401 | 5 to 6 | 365 vac | 370 vac | 16.2 | 0 | 0 | 16.2 |
| | 7 to 8 | 25 vac | 25 vac | 0.1 | 0 | 0 | 0.1 |
| | 1 to 2 | 115 vac | 115 vac | 0.6 | 0 | 0 | 0.6 |
| T1402 | 5 to 6 | 200 vac | 200 vac | 32 | 0 | 0 | 32 |
| | 1 to 2 | 115 vac | 115 vac | 2 | 0 | 0 | 2 |
| T1403 | 6 to 5 | 25.2 vac | 25.2 vac | 5.8 | 0 | 0 | 5.8 |
| | 1 to 2 | 115 vac | 115 vac | 67 | 0 | 0 | 67 |
| L1401 | 1 to 2 | --- | --- | 47 | --- | --- | 47 |
| L1402 | 1 to 2 | --- | --- | 47 | --- | --- | 47 |
| L1403 | 1 to 2 | --- | --- | 90 | --- | --- | 90 |
| I1404 | 1 to 2 | --- | --- | 90 | --- | --- | 90 |

c. Lubrication. The receiver-transmitter ac blower (figure 21) requires cleaning and lubrication after each 750 hours of operation or once every 60 days whichever occurs first. Lubrication of the blower unit requires disassembly of the motor and gear box and should be performed only by a qualified repairman equipped with proper tools. When the blower unit requires lubrication proceed as follows:

(1) Remove motor bearings and clean thoroughly in Solvent, Dry Cleaning (SD).

(2) Pack bearings with Grease MIL-G-3278 and replace.

(3) Disassemble gear box and thoroughly clean gears and bearings in Solvent, Dry Cleaning (SD).

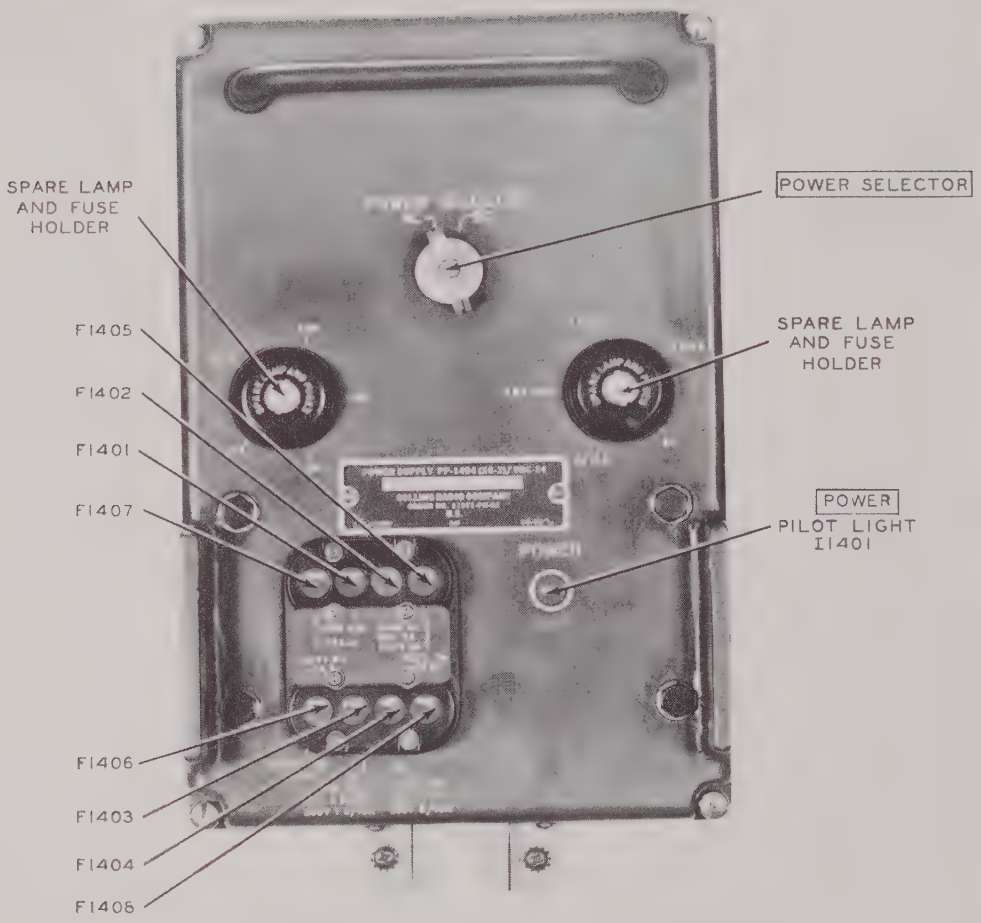



Figure 25. Power Supply PP-1494(XC-2)/VRC-24, front view

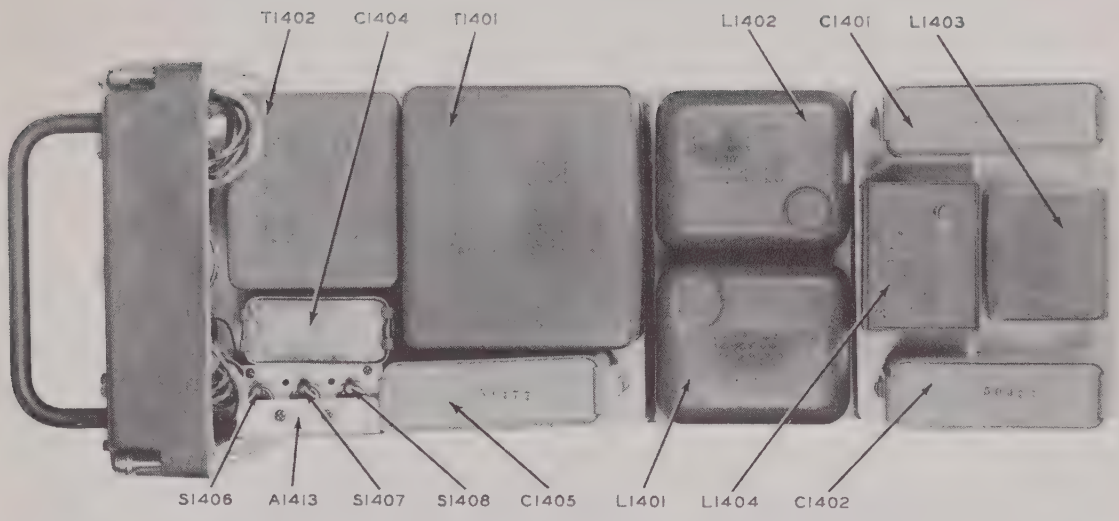



Figure 26. Power Supply PP-1494(XC-2)/VRC-24, top view

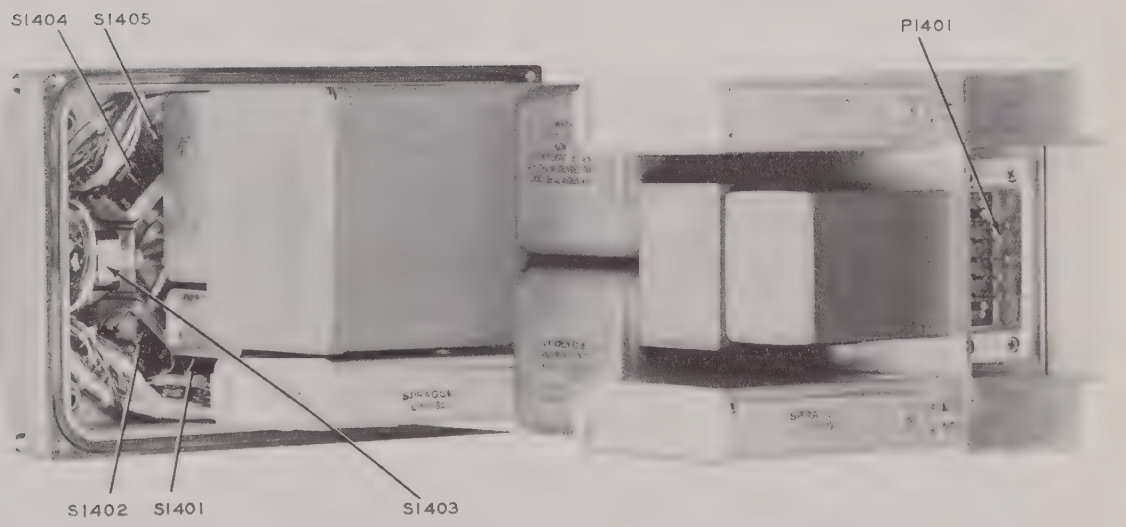



Figure 27. Power Supply PP-1494(XC-2)/VRC-24, top rear view

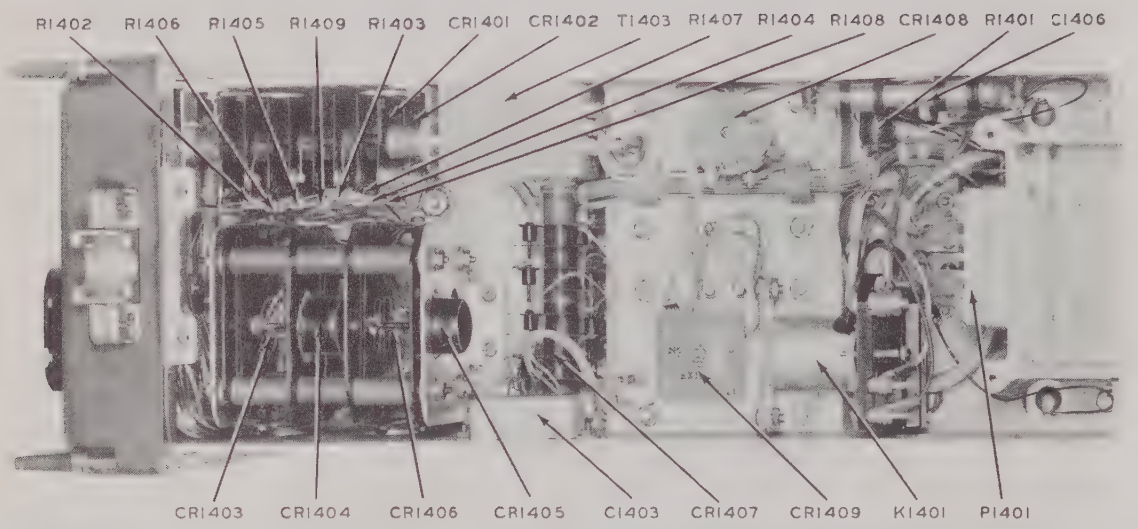



Figure 28. Power Supply PP-1494(XC-2)/VRC-24, bottom view

CHAPTER 6

THEORY

## Section I. GENERAL THEORY OF RECEIVER-TRANSMITTER RT-323(XC-2)/VRC-24

### 52. General

a. Receiver-Transmitter RT-323(XC-2)/VRC-24 provides amplitude modulated radio-telephone communication in the frequency range of 225.0 to 399.9 mc. One thousand seven hundred fifty (1750) channels cover this frequency range in 0.1 mc steps. An automatic tuning system tunes the receiver-transmitter to the desired frequency. Any one of ten preset channels can be selected from either the front panel or the remote control station. The set can be manually tuned to any of the 1750 available channels from the front panel.

b. Figure 29 is a block diagram of Receiver-Transmitter RT-323(XC-2)/VRC-24. This block diagram shows the signal paths for both the receive function and the transmit function of the set. In addition the block diagram shows the major control signals, the automatic tuning system and the power supply. The block diagram does not show circuit details which are covered in section II of this chapter. Paragraph 53 describes the signal path through the set when the set operates as a receiver. Paragraph 54 describes the signal path through the set when the set operates as a transmitter. Paragraph 55 describes the automatic tuning system. Paragraph 56 describes the power supply.

### 53. Receiver-Transmitter RT-323(XC-2)/VRC-24 as Receiver (fig. 29)

a. The set operates as a receiver at all times when in the "standby" condition. On receive the T/R (transmit-receive) relays are de-energized since the push-to-talk switch on the transmitter microphone is open. The 225.0 to 399.9 mc rf signal feeds from the antenna through the directional coupler and through antenna relay K101 to the first rf amplifier tube V102. (The directional coupler provides means for measuring rf power output and standing wave ratio during the transmit function.) After amplification by the first rf amplifier stage, the signal feeds to the second rf amplifier tube V103 for additional amplification. From the second rf amplifier stage the rf signal feeds to tube V104 which operates as the first receive mixer. The uhf injection system provides the heterodyning frequency to the first receive mixer through injection relay K102.

b. The uhf injection system provides 18 heterodyning frequencies between 200 and 370 mc in 10 mc steps. One of fifteen crystals (3 are used twice) in the frequency range of 31.11111 to 45.0 mc provides the fundamental frequency to crystal oscillator-multiplier tube V201. When the set operates in the 225.0 to 299.9 mc range the plate circuit of V201 is tuned to the second harmonic of the crystal frequency and when the set operates in the 300 to 399.9 mc range the plate circuit of V201 is tuned to the third harmonic of the crystal frequency. This provides 18 frequencies to the frequency tripler tube V202. The uhf injection signal from the frequency tripler receives three stages of rf amplification in tubes V203, V204, and V205. From V205 the uhf injection signal feeds the first receive mixer tube V104 through injection relay K102.

c. The rf signal which feeds the first receive mixer V104 is from 20 to 29.9 mc higher than the uhf injection frequency. Thus the if. output from the first receive mixer is variable between 20.0 and 29.9 mc. This variable if. signal feeds the first variable if. amplifier V301. This stage amplifies the signal and feeds it to the second 20.0 to 29.9 mc amplifier V302. After a second stage of amplification the 20.0 to 29.9 mc signal feeds the second receive mixer V303 for heterodyning with the signal from the 17 to 26 mc crystal oscillator tube V305. The 17 to 26 mc oscillator operates from ten crystals covering the 17 to 26 mc range in 1.0 mc steps. The oscillator frequency is between 3.0 and 3.9 mc lower than the 20.0 to 29.9 mc if. signal. Thus the if. output from the second receive mixer is variable between 3.0 to 3.9 mc. The 3.0 to 3.9 mc triple tuned circuit filters the 3.0 to 3.9 mc if. signal and feeds it to the third receive mixer 1/2 of V401

for heterodyning with the signal received from the 3.0 to 3.9 mc crystal oscillator 1/2 of V401. The 3.0 to 3.9 mc crystal oscillator is controlled by ten crystals covering the 3.0 to 3.9 mc range in 0.1 mc steps. The oscillator output is 0.5 mc higher than the if. frequency when the if. frequency is between 3.0 to 3.4 mc inclusive. The oscillator output is 0.5 mc lower than the if. frequency when the if. frequency is between 3.5 to 3.9 mc inclusive. Thus after heterodyning, the output from the third receive mixer is always 500 kc (0.5 mc). The 500 kc signal is fed through the 500 kc filter to the first 500 kc amplifier V501 then to the second 500 kc amplifier V502, and then to the third 500 kc if. amplifier V503 for a total of three stages of amplification. The SQUELCH sensitivity control R703 provides a manual gain control of rf and if. amplifier stages by controlling the rf and if. avc voltage. After amplification the 500 kc if. signal feeds to the detector CR501.

d. The detector diode CR501 demodulates the if. signal and feeds the audio signal to the series noise limiter diode CR503. Diode CR501 also develops an avc voltage which controls the first and second rf amplifiers through rf avc gate CR505 and controls the first and second 20 to 29.9 mc if. amplifiers and the first and second 500 kc if. amplifiers through the if. avc gate CR504. The series noise limiter clips audio peaks representing modulation peaks exceeding 45% modulation. Thus the series noise limiter removes noise peaks from the audio signal. The first audio amplifier tube V504 receives the audio signal from the series noise limiter, amplifies the signal and feeds the second audio amplifier V804 through squelch relay K801. The second audio amplifier amplifies the signal again and drives the push-pull amplifier V805, V806, V807, and V808 through driver transformer T801. The amplified audio signal feeds the headset, speaker and other outputs through the output transformer T802. The VOLUME control R710 and R714 provides headset and speaker volume control.

e. The carrier squelch is controlled by the negative dc voltage developed in the detector. When no signal is being received the squelch relay K801 is de-energized and the circuit to the second audio amplifier tube V804 is opened. When a signal of sufficient strength (determined by the setting of the SQUELCH control) is received the relay is energized and the circuit to the second audio amplifier tube V804 is closed.

f. The signal plus noise to noise squelch sensing circuit receives the af signal from V504. High and low pass filters separate the high frequency noise from the voice signal and the low frequency noise. The high frequency noise is rectified to produce a positive voltage and the voice signal and low frequency noise are rectified to produce a negative voltage. The two voltages are compared and the difference is applied to the squelch amplifier. If the amplitude of the voice signal is higher than the amplitude of the high frequency noise by more than a predetermined amount the squelch relay is energized and the circuit to the second audio amplifier tube V804 is closed.

54. Receiver-Transmitter RT-323(XC-2)/VRC-24 as Transmitter
(fig. 29)

a. When the set is turned on, depressing the push-to-talk switch energizes the T/R (transmit-receive) relays and the set operates as a transmitter. The set now generates an rf signal which is modulated by the microphone signal feeding through the modulator.

b. The uhf injection system operates as described in paragraph 53.b. except with injection relay K102 energized, the uhf injection signal feeds the second transmit mixer V101.

c. The 3.0 to 3.9 mc signal from the 3.0 to 3.9 mc oscillator 1/2 of V401 feeds the first transmit mixer V304 through the transmit buffer amplifier 1/2 of V401 and the triple tuned circuit. The 3.0 to 3.9 mc signal and the 17 to 26 mc signal from the 17 to 26 mc oscillator mix in the first transmit mixer. The sum frequency, 20.0 to 29.9 mc is amplified by the 20.0 to 29.9 mc amplifier and fed to the second transmit mixer V101 for heterodyning with the signal received from the uhf injection system.

d. The output of the second transmit mixer V101 is the sum of the 20.0 to 29.9 mc signal and the 200 to 370 mc signal from the uhf injection system, producing an rf signal in the 220.0 to 399.9 mc range (the first 5 mc band of this range is not considered in the useful range of the set). The first rf amplifier V102 and the second rf amplifier V103 provide two stages of amplification for the rf signal. The signal then feeds the transmit driver amplifier V104. From the driver stage the signal goes to the transmit power amplifier where it receives its final amplification. The rf signal is amplitude modulated by the audio signal from the modulator system. The modulated rf signal feeds from the power amplifier through the antenna relay K101 and the

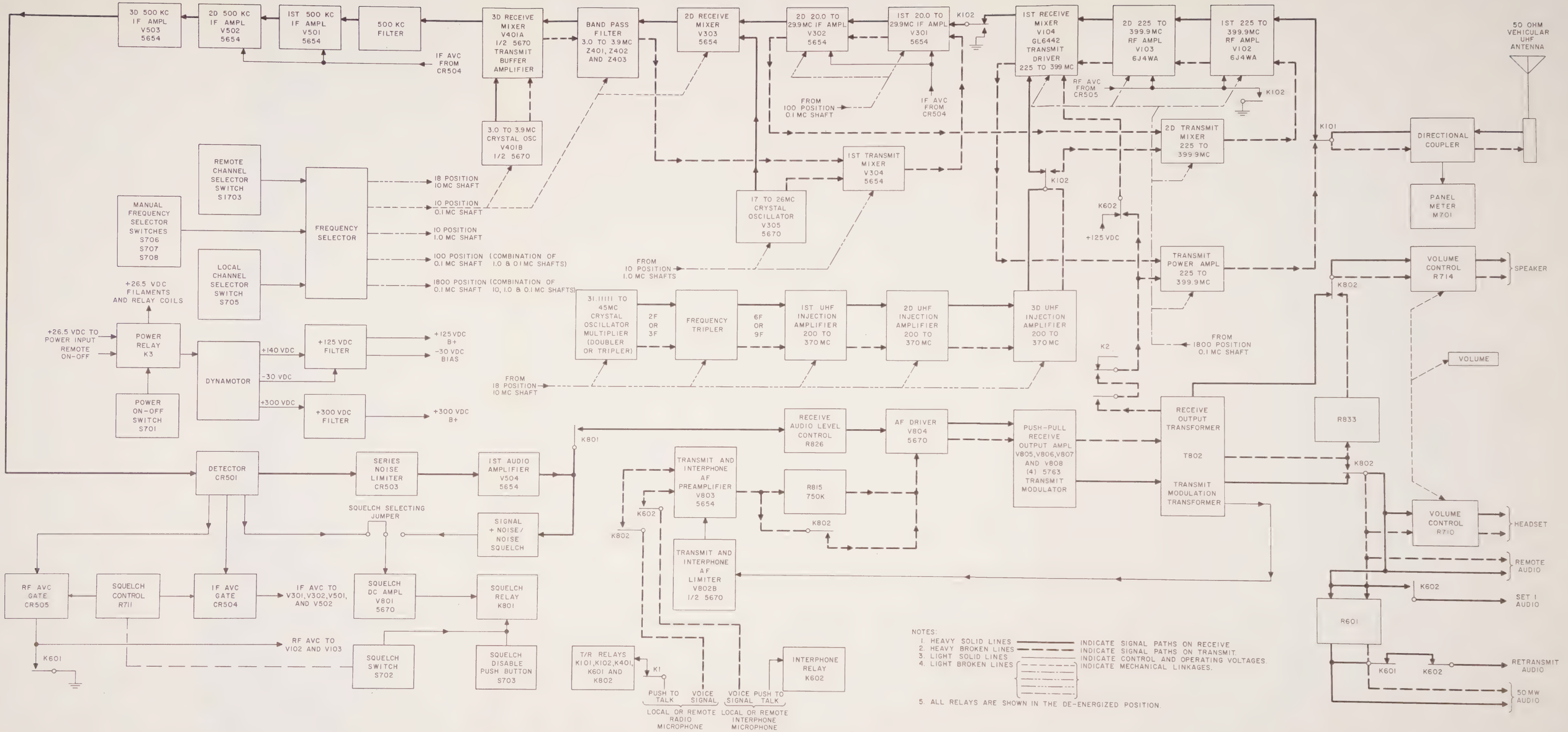

3D 500 KC IF AMPL V503 5654
2D 500 KC IF AMPL V502 5654
1ST 500 KC IF AMPL V501 5654
500 KC FILTER
IF AVC FROM CR504
3D RECEIVE MIXER V401A 1/2 5670 TRANSMIT BUFFER AMPLIFIER
3.0 TO 3.9MC CRYSTAL OSC V401B 1/2 5670
BAND PASS FILTER 3.0 TO 3.9MC Z401, Z402 AND Z403
2D RECEIVE MIXER V303 5654
2D 20.0 TO 29.9MC IF AMPL V302 5654
1ST 20.0 TO 29.9MC IF AMPL V301 5654
K102
FROM 100 POSITION 0.1MC SHAFT
IF AVC FROM CR504
1ST RECEIVE MIXER V104 GL6442 TRANSMIT DRIVER 225 TO 399 MC
2D 225 TO 399.9MC RF AMPL V103 6J4WA
1ST 225 TO 399.9MC RF AMPL V102 6J4WA
RF AVC FROM CR505
K102
50 OHM VEHICULAR UHF ANTENNA
K101
DIRECTIONAL COUPLER
PANEL METER M701
2D TRANSMIT MIXER 225 TO 399.9MC
1ST TRANSMIT MIXER V304 5654
17 TO 26MC CRYSTAL OSCILLATOR V305 5670
K102
K602
+125 VDC
REMOTE CHANNEL SELECTOR SWITCH S1703
MANUAL FREQUENCY SELECTOR SWITCHES S706 S707 S708
LOCAL CHANNEL SELECTOR SWITCH S705
FREQUENCY SELECTOR
1 POSITION 10MC SHAFT
10 POSITION 0.1MC SHAFT
10 POSITION 1.0MC SHAFT
100 POSITION (COMBINATION OF 0.1MC SHAFT 1.0 & 0.1MC SHAFTS)
1800 POSITION (COMBINATION OF 0.1MC SHAFT 10, 1.0 & 0.1MC SHAFTS)
FROM 10 POSITION 1.0MC SHAFTS
TRANSMIT POWER AMPL 225 TO 399.9MC
VOLUME CONTROL R714
SPEAKER
K802
+26.5 VDC FILAMENTS AND RELAY COILS
+26.5 VDC TO POWER INPUT REMOTE ON-OFF
POWER RELAY K3
POWER ON-OFF SWITCH S701
DYNAMOTOR
+140 VDC
-30 VDC
+300 VDC
+125 VDC FILTER
+300 VDC FILTER
+125 VDC B+
-30 VDC BIAS
+300 VDC B+
31.1111 TO 45MC CRYSTAL OSCILLATOR MULTIPLIER (DOUBLER OR TRIPLER)
2F OR 3F
FREQUENCY TRIPLER
6F OR 9F
1ST UHF INJECTION AMPLIFIER 200 TO 370 MC
2D UHF INJECTION AMPLIFIER 200 TO 370 MC
3D UHF INJECTION AMPLIFIER 200 TO 370 MC
FROM 18 POSITION 10MC SHAFT
FROM 1800 POSITION 0.1MC SHAFT
K2
VOLUME
RECEIVE AUDIO LEVEL CONTROL R826
AF DRIVER V804 5670
PUSH-PULL RECEIVE OUTPUT AMPL V805,V806,V807 AND V808 (4) 5763 TRANSMIT MODULATOR
RECEIVE OUTPUT TRANSFORMER T802
TRANSMIT MODULATION TRANSFORMER
R833
K801
DETECTOR CR501
SERIES NOISE LIMITER CR503
1ST AUDIO AMPLIFIER V504 5654
TRANSMIT AND INTERPHONE AF PREAMPLIFIER V803 5654
R815 750K
SQUELCH SELECTING JUMPER
SIGNAL + NOISE / NOISE SQUELCH
K602
K802
TRANSMIT AND INTERPHONE AF LIMITER V802B 1/2 5670
VOLUME CONTROL R710
HEADSET
REMOTE AUDIO
K602
SET 1 AUDIO
R601
RF AVC GATE CR505
SQUELCH CONTROL R711
IF AVC GATE CR504
IF AVC TO V301,V302,V501, AND V502
SQUELCH DC AMPL V801 5670
SQUELCH RELAY K801
RF AVC TO V102 AND V103
K601
SQUELCH SWITCH S702
SQUELCH DISABLE PUSH BUTTON S703
T/R RELAYS K101,K102,K401, K601 AND K802
K1
INTERPHONE RELAY K602
PUSH TO TALK
VOICE SIGNAL
LOCAL OR REMOTE RADIO MICROPHONE
VOICE SIGNAL
PUSH TO TALK
LOCAL OR REMOTE INTERPHONE MICROPHONE
K601
K602
RETRANSMIT AUDIO
50 MW AUDIO
NOTES:
1. HEAVY SOLID LINES — INDICATE SIGNAL PATHS ON RECEIVE
2. HEAVY BROKEN LINES — INDICATE SIGNAL PATHS ON TRANSMIT
3. LIGHT SOLID LINES — INDICATE CONTROL AND OPERATING VOLTAGES
4. LIGHT BROKEN LINES — INDICATE MECHANICAL LINKAGES
5. ALL RELAYS ARE SHOWN IN THE DE-ENERGIZED POSITION.

Figure 29. Receiver-Transmitter RT-323(XC-2)/VRC-24, block diagram

directional coupler to the antenna. The directional coupler provides an indication of the power output to the antenna and the standing wave ratio on the transmission line.

e. The modulator system receives its signal from the microphone through T/R relay K802. This signal is amplified by the transmit preamplifier V803. The signal feeds from this stage to the second audio amplifier V804. This stage amplifies the signal and feeds it to driver transformer T801. The driver transformer drives the transmit modulators V805, V806, V807, and V808 in push-pull. The transmit modulators amplify the signal and modulate the plate voltage supply to the rf driver and power amplifier through the modulation transformer T802. A portion of the audio signal from the secondary of transformer T802 is rectified and fed back to bias the transmit preamplifier V803 and provide modulation control. The secondary of T802, operating as described in paragraph 53.d., provides sidetone.

55. Frequency Selector System
(fig. 29)

a. The frequency selector system automatically positions five control shafts to tune the set through its frequency range. The 18 position shaft tunes the uhf injection system in 10 mc steps. The 1800 position shaft tunes the rf and power amplifier in 0.1 mc steps. The 100 position shaft tunes the 20.0 to 29.9 mc if. amplifier in 0.1 mc steps. One 10 position shaft tunes the 17 to 26 mc oscillator in 1.0 mc steps and the other 10 position shaft tunes the 3.0 to 3.9 mc triple tuned circuit and oscillator in 0.1 mc steps.

56. Power Supply
(fig. 29)

a. The internal power supply of Receiver-Transmitter RT-323(XC-1)/VRC-24 consists of a dynamotor and appropriate filters which supply +125 vdc, +300 vdc and -30 vdc. On receive all operating tubes except V801, V804, V805, V806, V807, and V808 operate from the +125 v supply. The second audio amplifier, the receive output amplifiers and the squelch amplifier use the +300 v supply. On transmit all operating tubes except the transmit driver, the second audio amplifier, the transmit power amplifier, and the transmit modulator tubes operate from the +125 v supply. The transmit driver, the second audio amplifier, the transmit power amplifier and the transmit modulator tubes operate from the +300 v supply.

## Section II. CIRCUIT ANALYSIS OF RECEIVER-TRANSMITTER RT-323(XC-2)/VRC-24

57. Circuit Analysis of RF and Power Amplifier Subassembly
(fig. 30)

a. RF and Power Amplifier on Receive.

(1) Signals from the antenna feed the rf and power amplifier subassembly through the directional coupler (see over-all schematic fig. 107). Antenna relay K101 is de-energized on receive and couples the antenna signal to parallel tuned rf input tank Z101 through a coupling network consisting of capacitors C106 and C108. Resistor R117 provides a dc path to ground for static charges developed on the antenna. Capacitor C110 couples the signal voltage developed across Z101 to the cathode of the first rf amplifier V102. Cathode network Z102 consists of a parallel tuned circuit and a 47 ohm resistor. The tuned circuit, which is resonant in the 225-399.9 mc range, provides a high coupling impedance for the rf signal. The resistor provides cathode bias for the tube. Capacitor C112 provides rf ground for the grid of tube V102. Resistor R104 connects the control grid of V102 to the rf avc bus and in conjunction with bypass capacitor C109 isolates rf signals from the rf avc bus. Plate voltage for V102 is from the +125 v supply through rf choke L105 and plate voltage dropping resistor R116. Bypass capacitor C113 isolates rf signals from the +125 v supply.

(2) Blocking capacitor C114 prevents the dc plate voltage on V102 from being grounded through the parallel tuned tank Z103 and couples the rf signal from the plate of V102 to tank Z103. Coupling capacitor C117 couples the rf signal to the second rf amplifier tube V103 which provides a second stage of rf amplification similar to the first stage.

(3) The coupling network C121, Z105, and C123 couples the amplified rf signal to the cathode of the first receive mixer tube V104. (In transmit this tube is the transmit driver.) Cathode resistor R111 is a wire wound resistor and it acts as an rf coupling choke in addition to providing cathode bias for V104. Capacitor C137 grounds the control grid of V104 for rf and resistors R106 and R107 comprise the grid-leak circuit to ground. (In transmit R107 is shorted out by T/R relay K601.) The cathode of V104 also receives a signal in the 200 to 370 mc range from the uhf injection system through P103, injection relay K102 and capacitor C135. The signal from the uhf injection system mixes with the rf signal from the rf amplifier producing a spectrum of frequencies including the difference frequency 20 to 29.9 mc. The difference frequency is coupled to output jack J102 through uhf choke L109 and injection relay K102. The first receive mixer tube V104 receives plate voltage from the +125 v supply through rf chokes L109, and L113. (On transmit T/R relay K601 switches the plate circuit of V104 to the +300 v supply.) Choke L113 in conjunction with bypass capacitor C134, isolates rf signals from the +125 v supply.

(4) When tanks Z101, Z103, Z105, and Z107 are tuned by the frequency selector, both capacity and inductance are varied. This improves the selectivity by maintaining the proper L/C ratio. Trimmer capacitors C107, C115, C122 and C127 set the minimum capacity points of the tanks. The 1800 position shaft of the frequency selector system tunes the ganged tanks Z101, Z103, Z105, and Z107 through the frequency range 225 to 399.9 mc. Test point J105 provides means for checking avc voltage and test point J106 provides means for checking the first receive mixer injection.

b. RF and Power Amplifier Transmit.

(1) In the transmit position the 200 to 370 mc rf signal from the uhf injection system feeds to the cathode of the second transmit mixer tube V101 through plug P103, injection relay K102, plug P104 and jack J107. The 20 to 29.9 mc signal from the first if. amplifier subassembly feeds into the plate circuit of V101 through jack J101. Plate voltage for V101 is from the +125 v supply through plate voltage dropping resistor R115 and rf chokes L103 and L102. L103, in conjunction with bypass capacitor C104, isolates rf signals from the +125 v supply. L102 presents a low impedance to the if. injection frequency while presenting a high impedance to the mixer output frequency. Capacitor C102 provides a uhf ground for the grid of tube V101. Resistors R101 and R102 are the grid leak circuit to ground. Bypass capacitor C101 provides a low impedance path to ground for rf signals. Wire wound resistor R103 provides cathode bias for V101 and acts as an rf coupling choke. The 200-370 mc signal from the uhf injection system and the 20-29.9 mc signal mix in V101 and a spectrum of frequencies including the sum frequency, 225 to 399.9 mc, appears in the plate circuit of V101.

(2) Blocking capacitor C105 prevents the dc plate voltage on V101 from being grounded through Z101 and couples the 225 to 399.9 mc rf signal from the plate of V101 to parallel tuned tank Z101. Coupling capacitor C110 couples the rf signal to the cathode of the first rf amplifier tube V102. Tubes V102 and V103 provide two stages of rf amplification as in the receive position except that injection relay K102 grounds the rf avc bus.

(3) After amplification, the 225 to 399.9 mc rf signal feeds to the cathode of the transmit driver tube V104. The wire-wound resistor R111 provides cathode bias for V104 and acts as an rf coupling choke. Capacitor C127 provides rf ground for the grid of V104 and resistor R106 is the grid-leak circuit to ground through T/R relay K601. Transmit driver V104 receives modulated plate voltage from the +300 v supply through T/R relay K601 and rf chokes L109 and L113. Choke L113, in conjunction with bypass capacitor C134, isolates rf signals from the 300 v supply. Blocking capacitor C126 prevents the dc voltage on the plate of V104 from being grounded through Z107 and couples the rf signal from the plate of V104 to parallel tuned tank Z107. Coupling capacitor C128 couples the rf signal to the control grid of the power amplifier tube V105. Injection relay K102 disconnects output jack J102 from the output of V104 and ground J102.

(4) Rf choke L114 and resistors R108, R118, and R109 are the grid leak circuit to ground. Choke L114 provides a high coupling impedance to the driving signal but provides a low impedance path for the dc grid current. The voltage developed across R108, R118, and R109 by the dc grid current provides

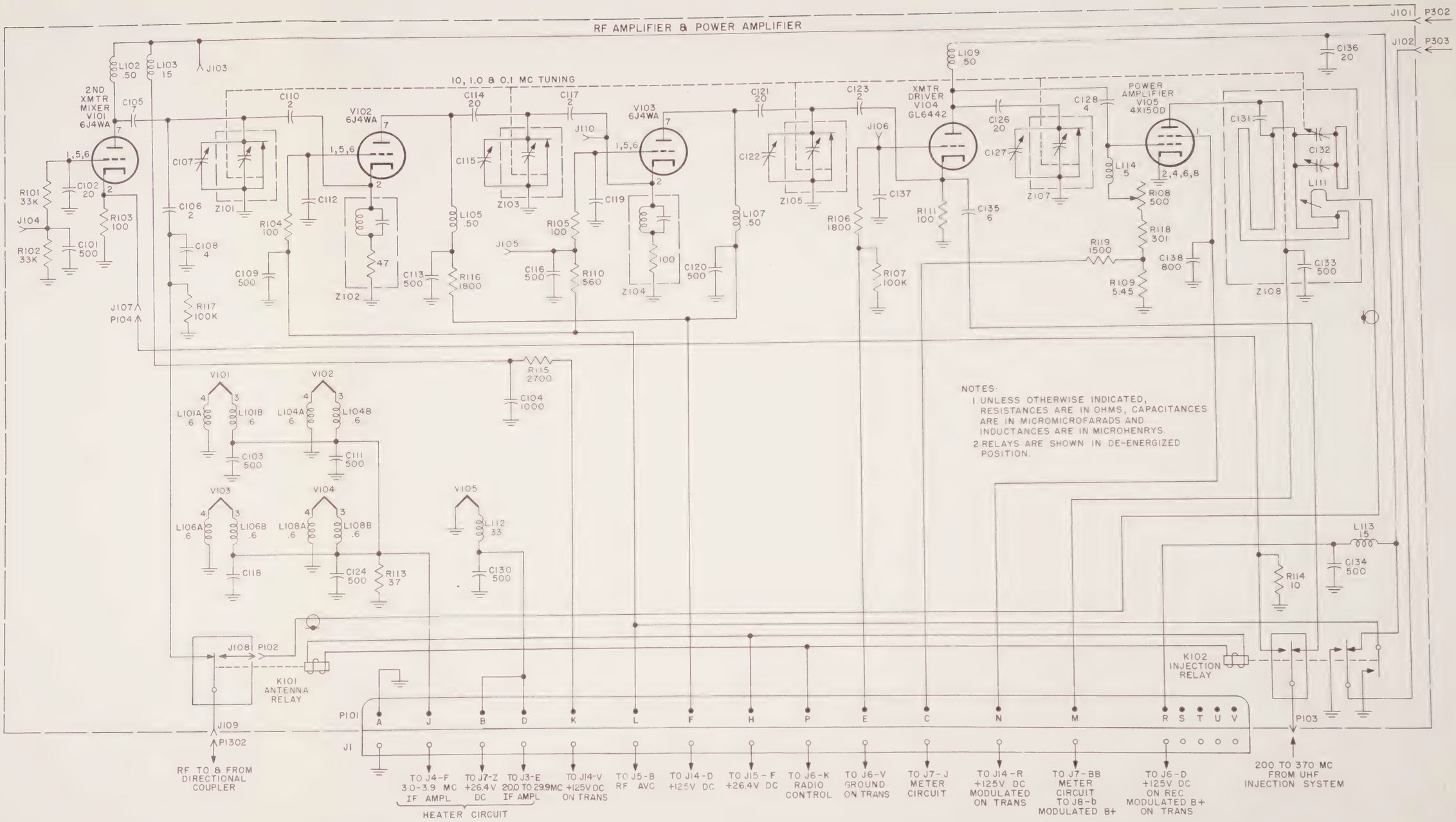



Figure 30. Rf and Power Amplifier, schematic diagram

bias for the tube. The voltage developed across R109 is applied to the meter circuit through R119 to indicate power amplifier grid current. The screen grid of V105 receives +125 vdc through T/R relay K601, L601, and R614. This voltage is modulated by the audio signal from the modulator through capacitors C601 and C602. Bypass capacitor C138 grounds the screen grid for rf. Tube V105 receives +300 volts of modulated plate voltage through an insulated conductor passing through the inner conductor of coaxial cavity Z108. Bypass capacitor C133 isolates rf signals from the +300 volt supply. The power amplifier plate tank Z108 is a tuned circuit consisting of a coaxial cavity and an integral tuning capacitor which is ganged with the rf amplifier tanks and is tuned by the 1800 position shaft of the frequency selector system. Dc blocking capacitor C131 prevents the dc voltage on the plate of V105 from being grounded through Z108 and couples the rf energy from the plate of V105 to the inner conductor of Z108. Trimmer C132 sets the minimum capacity point of Z108. Coupling loop L111 couples the rf energy from Z108 to the antenna circuit through antenna relay K101. Coupling loop L111 is adjusted for optimum coupling and locked.

(5) Test point J103 provides for measuring if. injection voltage (ac) and V101 dc plate voltage. Test point J104 provides for measuring developed grid bias due to uhf injection to V101. Test point J105 provides for measuring bias developed by the rf drive to V103. Test point J110 provides for measuring rf signal voltage on the cathode of V103. (J110 is used for preliminary adjustment of C107 and C115.) Test point J106 provides for measuring developed grid bias due to drive to V104.

58. Circuit Analysis of UHF Injection System Subassembly (fig. 31)

a. UHF Injection System on Receive.

(1) The master oscillator V201 (fig. 31) is a crystal controlled cathode coupled oscillator especially designed for use with overtone crystals. Tube V201 is a twin triode one half of which acts as a grounded grid amplifier capacitively coupled to the other half which acts as a cathode follower. Coupling capacitor C207 couples the signal from the plate (pin 4) of the grounded grid amplifier to the control grid (pin 7) of the cathode follower. The crystal couples the output form the cathode (pin 8) of the cathode follower to the cathode (pin 2) of the grounded grid amplifer. The crystal operates at series resonance providing low impedance coupling with zero phase shift. The phase shift through the amplifier is also zero, thus an in-phase signal is fed back to the grounded grid amplifier and conditions for sustained oscillation are satisfied. Rf choke L220 is chosen to resonate the crystal socket capacity canceling its effect on the operation of the circuit. Trimmer coils L201 to L218 inclusive adjust the frequency of oscillation to compensate for finishing tolerance in the crystals. Blocking capacitor C201 prevents the plate voltage on pin 4 of V201 from being grounded through the trimmer coils. Rf choke L221 is the shunt feed choke through which dc voltage is fed to the plate (pin 4) of the grounded grid amplifier. Rf choke L221, bypass capacitor C202 and resistor R201 isolate rf signals from the +125 v supply. Capacitor C236 is a temperature compensating capacitor. The grid (pin 3) of the grounded grid amplifier is grounded through parasitic suppressor R202. Resistors R203 and R204 provide the coupling impedances at the cathodes and provide bias for the two halves of V201. Dc blocking capacitors C203 and C204 prevent the dc bias voltage across R203 and R204 from being grounded through L219. Resistor R205 is the grid leak circuit to ground for the cathode follower. Plate voltage for the cathode follower is supplied through step tuner Z201, trimmer coil L222 and parasitic suppressor R206. Step tuner Z201 is tuned by the 10 mc frequency selector so that when the set operates in the 220 to 299.9 mc range the tank circuit is tuned to the second harmonic of the crystal frequency and when the set operates in the 300 to 399.9 mc range the tank circuit is tuned to the third harmonic. Thus the output of the oscillator is either two or three times the crystal frequency depending upon the tuning of the set. Bypass capacitor C209 isolates signals from the +125 v supply. Dc blocking capacitor C210 blocks dc plate voltage from the control grid of the next stage while providing coupling for the rf signal. Crystals Y201, Y202, Y204, and Y206 through Y218 have one side common and connected to pin 8 of V201 through C204. Thus since the crystal cases are grounded a large capacity to ground exists at pin 8 of V201. Choke L219 resonates with this capacity and cancels its effect.

(2) Resistors R207 and R208 comprise the grid leak circuit to ground for the frequency tripler V202. Test point J201 provides for measuring the drive to V202. Capacitor C211 bypasses rf signals to

ground preventing them from interfering with dc measurements being made at J201. The cathode of V202 is grounded, thus the tube depends entirely upon the voltage developed across the grid leak circuit for bias. Screen grid voltage is supplied to V202 through voltage dropping resistor R213 and screen grid voltage dropping resistor R209. Capacitor C212 grounds the screen grid for rf and bypass capacitor C213 provides additional decoupling. Plate voltage for V202 is supplied through R213 and rf choke L224. Choke L224 in conjunction with bypass capacitor C213 isolates the rf signal from the +125 v supply. Dc blocking capacitor C214 blocks the dc plate voltage from the parallel tuned tank Z202 and couples the rf signal to Z202. Tank Z202 is tuned to the third harmonic (200 to 370 mc) of the rf signal applied to the grid of tube V202. Thus V202 operates as a frequency tripler. Trimmer C215 sets the minimum capacity point of Z202.

(3) Coupling capacitor C216 couples the rf signal from Z202 to the cathode of grounded grid amplifier V203. The cathode circuit Z203 consists of a parallel tuned circuit resonant in the 200 to 370 mc range and a 100 ohm resistor. The resistor provides cathode bias. Tube V203 receives plate voltage from the +125 v supply through plate voltage dropping resistor R210 and rf choke L226. Choke L226 in conjunction with bypass capacitor C219 isolates the rf signal from the +125 v supply. Dc blocking capacitor C220 blocks the plate voltage from the parallel tuned tank Z204 and couples the rf signal from the plate of V203 and Z204. Coupling capacitor C222 couples the rf signal to the cathode of grounded grid amplifier V204.

(4) Tubes V204 and V205 with their associated circuits provide two additional stages of rf amplification identical to that described in paragraph 56.a. (3) above.

(5) Capacitors C234 and C235 form a voltage divider from which the uhf signal is coupled to the first receive mixer through J205.

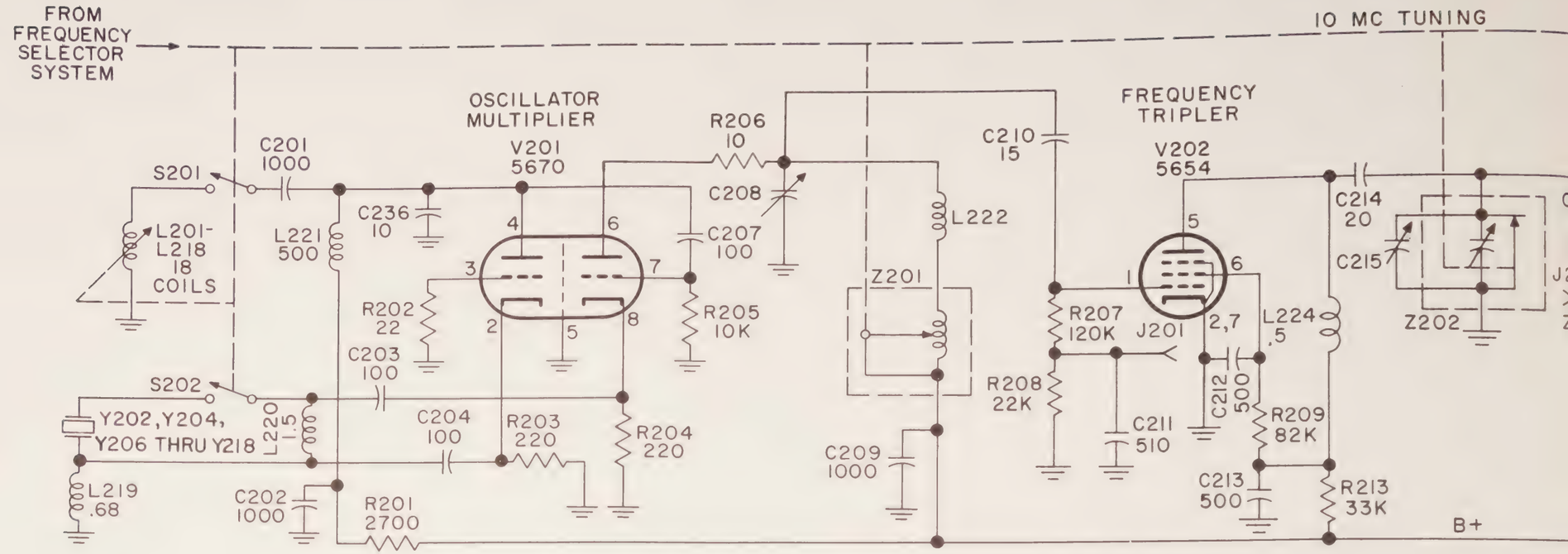
(6) Test points J202, J203, and J204 provide for either measuring the rf signals at the cathodes of the amplifiers for alignment purposes or for injecting a signal to locate a defective stage. Tanks Z202, Z204, Z206, and Z208 are tuned by the 18 position shaft of the frequency selector system. When the tanks are tuned both capacity and inductance are varied, improving selectivity by maintaining a good L/C ratio.

b. UHF Injection System on Transmit. Operation of the uhf injection system on transmit is identical to that on receive.

c. UHF Injection System Frequency Chart. The following chart correlates the dial settings with the crystal frequencies, multiplier tuning and amplifier tuning. The chart applies for both receive and transmit functions.

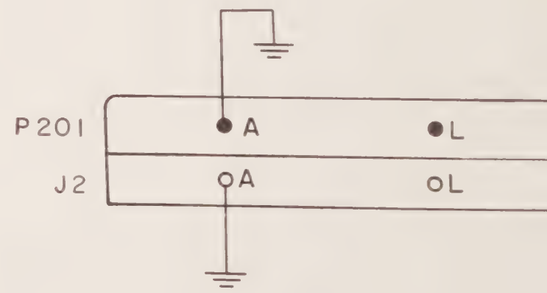
Uhf Injection System Frequency Chart (receive and transmit)

| Channel frequency (mc) | Master Oscillator | | | Uhf injection to first receive mixer or to second transmit mixer (mc) |
|---|---|---|---|---|
| | Crystal frequency (mc) | Output frequency (mc) | Crystal frequency multiplication factor | |
| 39x.x | 41.11111 | 123.33333 | 3 | 370 |
| 28x.x | 40.00000 | 120.00000 | 3 | 360 |
| 37x.x | 38.88888 | 116.66664 | 3 | 350 |
| 36x.x | 37.77777 | 113.33331 | 3 | 340 |
| 35x.x | 36.66666 | 109.99998 | 3 | 330 |
| 34x.x | 35.55555 | 106.66665 | 3 | 320 |
| 33x.x | 34.44444 | 103.33332 | 3 | 310 |
| 32x.x | 33.33333 | 99.99999 | 3 | 300 |
| 31x.x | 32.22222 | 96.66666 | 3 | 290 |
| 30x.x | 31.11111 | 93.33333 | 3 | 280 |




NOTES;

1. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN MICRO-MICROFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRYS.
2. SWITCHES S201 AND S202 ARE 18 POSITION SELECTOR SWITCHES.



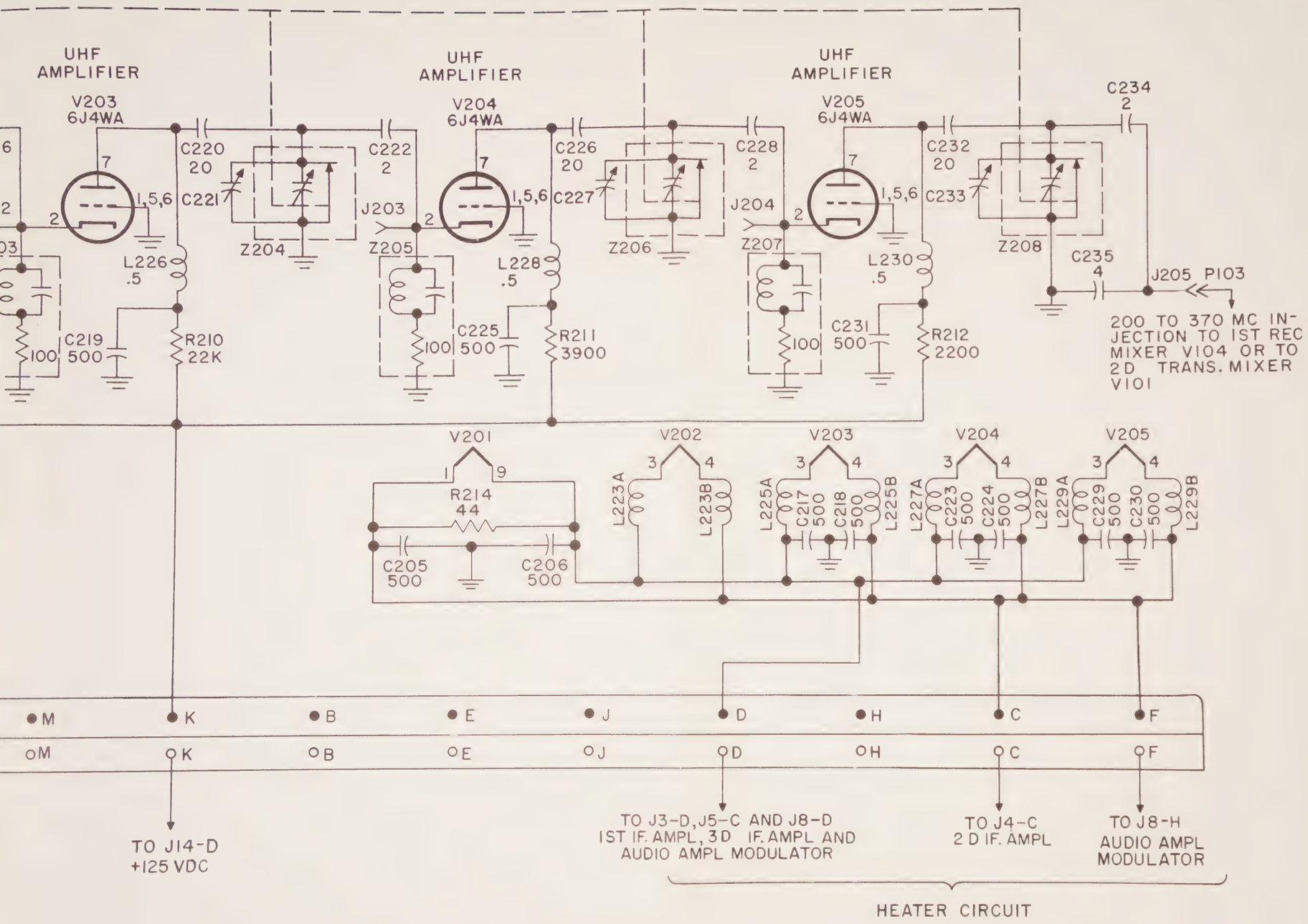



Figure 31. Uhf Injection System, schematic diagram

Uhf Injection System Frequency Chart (receive and transmit) (Cont)

| Channel frequency (mc) | Master Oscillator | | | Uhf injection to first receive mixer or to second transmit mixer (mc) |
|---|---|---|---|---|
| | Crystal frequency (mc) | Output frequency (mc) | Crystal frequency multiplication factor | |
| 29x.x | 45.00000 | 90.00000 | 2 | 270 |
| 28x.x | 43.33333 | 86.66666 | 2 | 260 |
| 27x.x | 41.66666 | 83.33332 | 2 | 250 |
| 26x.x | 40.00000 | 80.00000 | 2 | 240 |
| 25x.x | 38.33333 | 76.66666 | 2 | 230 |
| 24x.x | 36.66666 | 73.33332 | 2 | 220 |
| 23x.x | 35.00000 | 70.00000 | 2 | 210 |
| 22x.x | 33.33333 | 66.66666 | 2 | 200 |

59. Circuit Analysis of the 20.0 to 29.9 Mc If. Amplifier Subassembly (fig. 32)

a. 20.0 to 29.9 Mc If. Amplifier on Receive.

(1) B+ blocking capacitor C301 couples the 20.0 to 29.9 mc if. signal from the first receive mixer to parallel tuned tank Z301. Coupling capacitor C303 couples the if. signal to parallel tuned tank Z302. Avc blocking capacitor C305 couples the if. signal to the control grid of the first 20.0 to 29.9 mc if. amplifier tube V301 through parasitic suppressor resistor R324. Resistor R301 in conjunction with bypass capacitor C326 isolates the if. signal from the avc bus. Resistor R302 provides cathode bias for V301 and capacitor C309 grounds the cathode of V301 for rf. Series resistors R304, R305, and R303 form a voltage divider which provides proper plate and screen grid voltages to V301. Resistor R304 is connected to the +125 v supply and R303 is grounded by T/R relay K601 (in transmit T/R relay K601 opens the ground circuit for R303 and raises the screen grid voltage to V301). Capacitor C320 grounds the screen grid for rf. The parallel tuned tank Z303 is the plate load for V301. Coupling capacitor C308 couples the if. signal developed in Z303 to the parallel tuned tank Z304. Avc blocking capacitor C311 couples the if. signal to the control grid of the second 20.0 to 29.9 mc if. amplifier tube V302 through parasitic suppressor resistor R307. A similar coupling network consisting of Z305, C314, Z306, and C316 couples the amplified if. signal to the control grid of the second receive mixer tube V303. V302 receives screen voltage from the +125 v supply through resistor R309. Resistor R309 in conjunction with bypass capacitor C324 isolates rf signals from the +125 v supply. Capacitor C324 also grounds the screen grid of V302 for rf. Rf bypass capacitors C327, C328, and C329 provide additional isolation. The cathode bias circuit for V302 consists of two resistors R323 and R308 in series. The dc voltage developed across R308 is applied to the S-meter circuit and provides means of measuring the input signal strength. Tanks Z301, Z302, Z303, Z304, Z305, and Z306 are permeability tuned by the 100 position shaft of the frequency selector system. Trimmers C302, C304, C306, C309, C312, and C317 are adjusted to set the L/C ratio for proper tracking.

(2) The cathode of V303 receives the 17 to 26 mc signal from the second oscillator V305. The 17 to 26 mc oscillator signal mixes with the 20.0 to 29.9 mc if. signal producing a spectrum of frequencies including the difference frequency 3.0 to 3.9 mc which is coupled to the 3.0 to 3.9 mc if. amplifier subassembly through plug P304. Tube V303 receives plate voltage from the +125 v supply through T/R relay K601 interphone relay K602, the input of the 3.0 to 3.9 mc if. amplifier and P304. Screen grid voltage is supplied through dropping resistor R312. Bypass capacitor C318 grounds the screen grid for rf.

(3) The second oscillator tube V305 is a cathode coupled, crystal controlled oscillator. Crystal switches S301 and S302 select the proper crystal according to the setting of the frequency selector. One half of V305 (pins 6, 7, and 8) is a grounded grid amplifier working into the parallel tuned

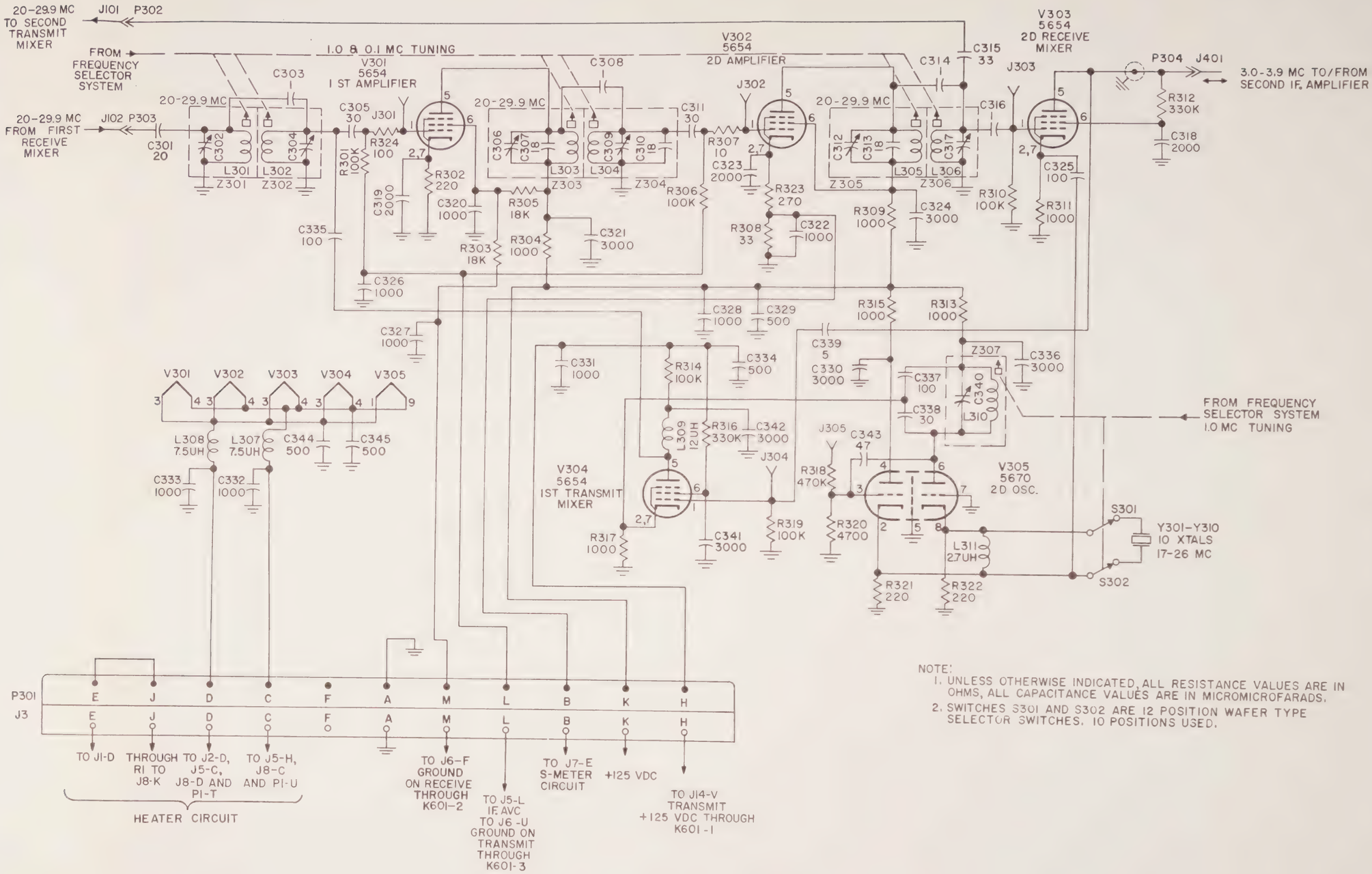
tank Z307 which constitutes its plate load. Tank Z307 is ganged with the crystal switches and driven by the 10 position 1.0 mc shaft of the frequency selector system. Capacitor C343 couples the output from the plate (pin 6) of the grounded grid amplifier V305 to the control grid (pin 3) of the cathode follower (the other half of V305, pins 2, 3, and 4). The crystal couples the output from the cathode (pin 2) of the cathode follower to the cathode (pin 8) of the grounded grid amplifier. The crystal operates at series resonance providing low impedance coupling with zero phase shift. The phase shift through the cathode follower is also zero. Thus an in-phase voltage is fed back into the cathode (pin 8) of the grounded grid amplifier and conditions for sustained oscillation are satisfied. Rf choke L311 resonates the crystal socket capacity and prevents it from affecting the operation of the circuit. Resistors R321 and R322 provide the coupling impedances at the cathodes and provide bias for the two sections of the tube. Resistor R320 is the grid-leak to ground for the cathode follower. Test point J305 provides for measuring the dc bias developed across R320. Resistor R318 isolates J305 from the control grid (pin 3) of the cathode follower and prevents loading of the grid circuit by test instruments. The plate (pin 4) of the cathode follower receives voltage from the +125 v supply through isolating resistor R315. The plate (pin 6) of the grounded grid amplifier receives voltage from the +125 v supply through R313 and T304. Resistor R313, in conjunction with capacitor C336 isolates the oscillator signal from the +125 v supply. The output of the oscillator is taken from the cathode (pin 2) of the cathode follower and fed to the cathode of the second receive mixer tube V303 through coupling capacitor C325.

(4) Test points J301 and J302 provide for measuring avc voltage at the control grids of V301 and V302. Test point J303 provides for measuring the bias developed by 20.0 to 29.9 mc injection to the control grid of V303.

b. 20.0 to 29.9 Mc If. Amplifier on Transmit.

(fig. 32)

(1) T/R relay K601 disconnects the plate voltage from the second receive mixer tube V303 and the 3.0 to 3.9 mc signal from the 3.0 to 3.9 mc if. amplifier is coupled to the control grid of the first transmit mixer V304 through plug P304 and coupling capacitor C339. Resistor R319 is the grid-leak to ground for V304. Test point J304 provides means for measuring the 3.0 to 3.9 mc injection. Resistor R317 provides bias for V304 and also provides the coupling impedance for the 17 to 26 mc signal from the second oscillator. The oscillator signal couples to the cathode of V304 from Z307 through the capacitive voltage divider C338 and C337. T/R relay K601 connects the plate of V304 to the +125 v supply through isolating resistor R314 and rf choke L309. L309 is the plate load across which the output signal of V304 is developed. Capacitors C342, C334, and C331 provide a low impedance path to ground for rf. Resistor R316 drops the +125 v to the proper value for the screen grid of V304. Capacitor C341 grounds the screen grid for rf. The 17 to 26 mc signal from the oscillator mixes with the 3.0 to 3.9 mc if. signal producing a spectrum of frequencies including the sum frequency 20.0 to 29.9 mc which is coupled to the control grid of V301 through blocking capacitor C335, coupling capacitor C305 and parasitic suppressor R324. The parallel tuned tank Z301 selects the 20.0 to 29.9 mc signal and rejects the others. Tubes V301 and V302 operating as on receive except that T/R relay K601 grounds the avc bus and removes the ground from R303 raising the screen grid voltage to V301, provide two stages of if. amplification. B+ blocking capacitor C315 couples the amplified 20.0 to 29.9 mc signal from Z306 through plug P302 to the plate of the second transmit mixer tube V101 in the rf and power amplifier subassembly. Test point J302 provides for measuring the bias developed by drive to V302.




NOTE:
1. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN MICROMICROFARADS.
2. SWITCHES S301 AND S302 ARE 12 POSITION WAFER TYPE SELECTOR SWITCHES. 10 POSITIONS USED.

Figure 32. 20.0 to 29.9 mc If. Amplifier, schematic diagram

c. 20.0 to 29.9 Mc If. Amplifier Frequency Chart. - The following chart correlates the dial settings with the frequencies present in the 20.0 to 29.9 mc if. amplifier on both receive and transmit.

| Channel frequency (mc) | 17 to 26 mc Oscillator | | 20.0 to 29.9 mc If. frequency (mc) |
|---|---|---|---|
| | Crystal frequency (mc) | Injection to second receive mixer or to first transmit mixer (mc) | |
| xx9.x | 26 | 26 | 29.x |
| xx8.x | 25 | 25 | 28.x |
| xx7.x | 24 | 24 | 27.x |
| xx6.x | 23 | 23 | 26.x |
| xx5.x | 22 | 22 | 25.x |
| xx4.x | 21 | 21 | 24.x |
| xx3.x | 20 | 20 | 23.x |
| xx2.x | 19 | 19 | 22.x |
| xx1.x | 18 | 18 | 21.x |
| xx0.x | 17 | 17 | 20.x |

60. Circuit Analysis of the 3.0 to 3.9 mc If. Amplifier Subassembly and the 500 Kc Filter Subassembly (fig. 33)

a. 3.0 to 3.9 Mc If. Amplifier on Receive.

(1) The parallel tuned tank Z401 is the plate load for the second receive mixer tube V303. Coupling capacitor C403 couples the 3.0 to 3.9 mc if. signal developed in Z401 to the parallel tuned tank Z402. Coupling capacitor C407 couples the if. signal from Z402 to the parallel tuned tank Z403. Dc blocking capacitor C411 couples the if. signal to the cathode (pin 2) of the third receive mixer section of V401. Resistor R401 in conjunction with bypass capacitors C406 and C420 isolates rf signals from the +125 v supply. The 10 position 0.1 mc shaft of the frequency selector system tunes the band pass filter Z401, Z402,and Z403 by positioning the powdered iron cores in the main tuning coils L401, L403, and L405. Trimmer coils L402, L404, and L406 adjust the L/C ratio for proper tracking.

(2) The third oscillator section of V401 provides injection signal to the third receive mixer section of V401. The oscillator is crystal controlled by crystals Y401 to Y410 inclusive. T/R relay K401 connects crystal selector switch S401 to the control grid (pin 7) of the oscillator section of V401. Switch S401 is driven by the 10 position, 0.1 mc shaft of the frequency selector system and selects crystals so that there is a 500 kc (0.5 mc) differential between the oscillator frequency and the 3.0 to 3.9 mc if. When the 0.1 mc frequency selector is set to a frequency in the 0.0 to 0.4 mc range the oscillator frequency is in the 3.5 to 3.9 mc range and the if. is in the 3:0 to 3.4 mc range. When the 0.1 mc frequency selector is set to a frequency in the 0.5 to 0.9 mc range the oscillator frequency is in the 3.0 to 3.4 mc range and the if. is in the 3.5 to 3.9 mc range. The voltage divider action of the series connected capacitors C412 and C413 determines the electrical position of the cathode (pin 8) of the oscillator section of V401 relative to the electrical center of the tuned circuit represented by the crystal. The values of these capacitors are such that oscillation is maintained at the fundamental frequency of the crystal. Grid current flowing through the grid leak resistor R403 develops bias for the tube. Cathode resistor R404 provides additional bias to protect the tube in case oscillation stops. Rf choke L407 isolates the bias resistor R404 from the crystal circuit and prevents loading of the crystal circuit which might stop oscillation. The oscillator section of V401 receives plate voltage through plate voltage dropping resistor R407 from the voltage divider resistors R410 and R409. Capacitor C416 grounds the plate for rf. Resistor R410 and capacitors C418 and C419 decouple the plates of V401 from the power supply. Test point J402 provides for measuring the voltage developed across R403. Resistor R402 isolates J402 from the

crystal circuit. Coupling capacitor C417 couples the signal from the control grid (pin 7) of the oscillator section of V401 to the control grid (pin 3) of the third receive mixer section of V401.

(3) The if. and oscillator signals mix in the third receive mixer section of V401 producing a spectrum of frequencies including the difference frequency 500 kc which is coupled to the 500 kc filter through dc blocking capacitor C410 and J403. The third receive mixer section of V401 receives plate voltage from the voltage divider resistors R410 and R409 through dropping resistor R408. Resistor R406 is the grid leak circuit to ground. Resistor R405 provides cathode bias and the coupling impedance for the injection signal from the 3.0 to 3.9 mc band-pass filter. Test point J403 provides for measuring 3.0 to 3.9 mc injection.

(4) The 500 kc filter consists of nine parallel tuned circuits in cascade capacitively coupled. The filter is factory tuned to have the band-pass characteristic shown in figure 34. The 500 kc if. signal couples from the third receive mixer through the 500 kc filter and P902 to J502 on the 500 kc if. amplifier.

b. 3.0 to 3.9 Mc If. Amplifier on Transmit. (fig. 33)

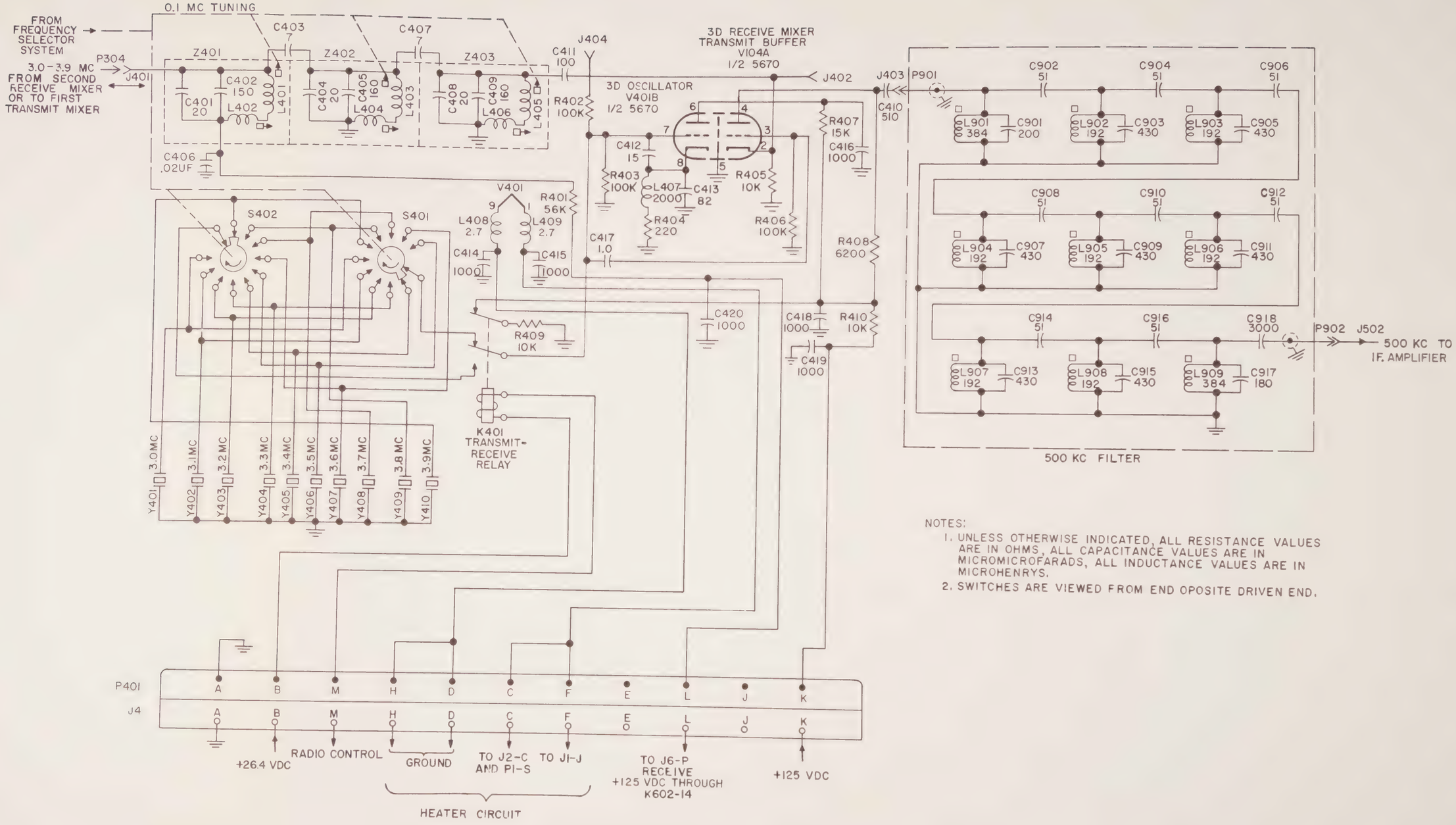
(1) On transmit T/R relay K401 energizes and disconnects R409 from R410 raising the plate voltage to the third oscillator and cathode follower buffer amplifier V401. Capacitor C411 couples the signal from the cathode (pin 2) of V401 to Z403.

(2) T/R relay K401 also transfers the control grid circuit of the oscillator section of V401 from crystal switch S401 to S402 which selects crystals Y401 through Y410 in order of frequency so that the oscillator operates on the 3.0 to 3.9 mc if. frequency instead of a frequency 500 kc removed as on receive.

(3) All other circuits in the 3.0 to 3.9 mc if. amplifier operate as on receive.

c. 3.0 to 3.9 Mc If. Amplifier Frequency Chart. The following chart correlates the dial settings with frequencies present in the 3.0 to 3.9 mc if. amplifier on both receive and transmit.

| Channel frequency (mc) | 3.0 to 3.9 mc Oscillator | | | | 3.0 to 3.9 mc If. frequency (mc) |
|---|---|---|---|---|---|
| | Receive | | Transmit | | |
| | Crystal frequency (mc) | Injection to third receive mixer (mc) | Crystal frequency (mc) | Injection to first transmit mixer (mc) | |
| xxx.9 | 3.4 | 3.4 | 3.9 | 3.9 | 3.9 |
| xxx.8 | 3.3 | 3.3 | 3.8 | 3.8 | 3.8 |
| xxx.7 | 3.2 | 3.2 | 3.7 | 3.7 | 3.7 |
| xxx.6 | 3.1 | 3.1 | 3.6 | 3.6 | 3.6 |
| xxx.5 | 3.0 | 3.0 | 3.5 | 3.5 | 3.5 |
| xxx.4 | 3.9 | 3.0 | 3.4 | 3.4 | 3.4 |
| xxx.3 | 3.8 | 3.8 | 3.3 | 3.3 | 3.3 |
| xxx.2 | 3.7 | 3.7 | 3.2 | 3.2 | 3.2 |
| xxx.1 | 3.6 | 3.6 | 3.1 | 3.1 | 3.1 |
| xxx.0 | 3.5 | 3.5 | 3.0 | 3.0 | 3.0 |




NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN MICROMICROFARADS, ALL INDUCTANCE VALUES ARE IN MICROHENRYS.
2. SWITCHES ARE VIEWED FROM END OPOSITE DRIVEN END.

Figure 33. 3.0 to 3.9 mc If. Amplifier, schematic diagram

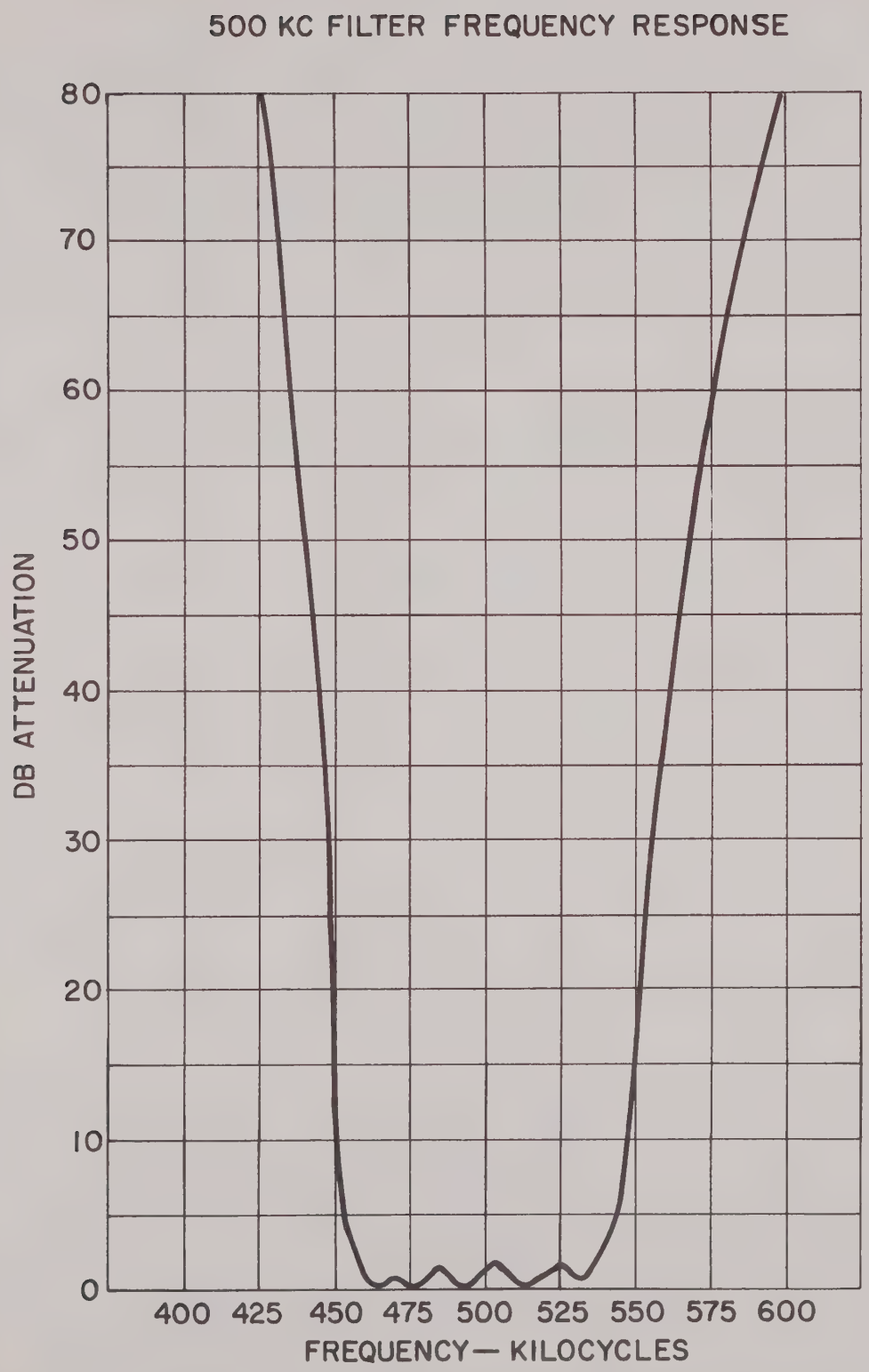



Figure 34. 500 Kc If. Filter, band-pass characteristics

61. Circuit Analysis of the 500 Kc If. Amplifier Subassembly (fig. 38)

a. The 500 kc if. signal is applied to the control grid of the first 500 kc amplifier tube V501. Resistor R501 connects the control grid of V501 to the if. avc bus. Resistor R502 is the cathode bias resistor for V501. Capacitor C507 grounds the cathode of V501 for rf. Tubes V501 and V502 receive plate and screen grid voltage from the +125 v line through dropping resistor R514 which in conjunction with C519 isolates rf signals from the +125 v line. The screen grid of V501 receives voltage through screen grid voltage dropping resistor R503. Capacitor C504 provides a low impedance rf path from the screen grid to the cathode. The plate of V501 receives voltage through the plate load consisting of rf choke L501 and resistor R504. Capacitor C502 blocks the dc plate voltage from and couples the 500 kc if. signal to the control grid of the second amplifier tube V502.

b. Tube V502 and its circuits provide a second stage of if. amplification identical to the first.

c. The control grid of the third amplifier tube V503 is connected to ground through grid leak resistor R509. The cathode circuit is identical to that of V501. The screen grid of V503 receives voltage from the +125 v line through screen grid voltage dropping resistor R511. Capacitor C506 provides a low impedance rf path from the screen grid to the cathode. Tube V503 receives plate voltage through plate voltage dropping resistor R512 and the primary of if. output transformer T501. Resistor R512 in conjunction with C510 isolates rf signals from the +125 v line.

d. Test points J503 and J505 provide for injecting a test signal for trouble shooting. Test point J507 provides for measuring if. avc voltage. Test point J508 provides for measuring voltage applied to the squelch amplifier.

e. Detector CR501 demodulates the if. signal and produces an audio signal across the detector load resistors R516, R517, and R518 (fig. 35). The audio signal is coupled from the junction of resistors R517 and R518 to the control grid of the first audio amplifier through coupling capacitor C522 and series noise limiter diode CR503. Capacitor C524 grounds the cathode of the detector for audio. Capacitors C520 and C521 filter the rf components from the demodulated signal.

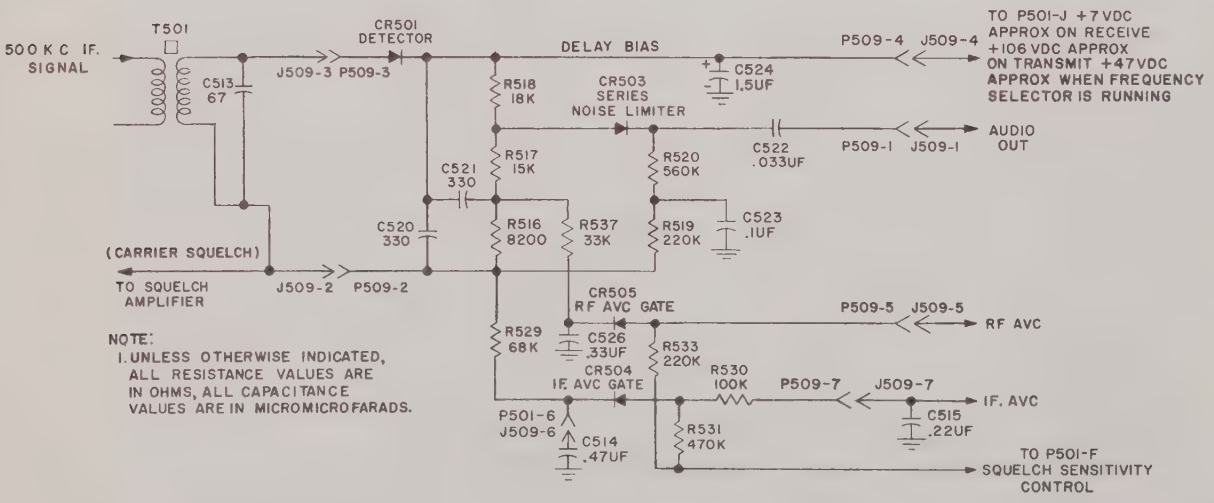



Figure 35. Detector, Avc, and Series Noise Limiter, simplified schematic diagram

f. Series noise limiter diode CR503 (fig. 36) clips audio peaks representing modulation peaks exceeding 45 percent modulation. The series noise limiter does not affect that part of the signal produced by modulation troughs. The cathode of diode CR503 is connected to the negative end of the detector load through resistors R519 and R520. Resistor R519 in conjunction with capacitor C523 filters the audio signal and produces at the junction of resistors R519 and R520 a negative dc voltage slightly lower than the average voltage at the negative end of the detector load. The audio signal voltage at the anode of diode CR503 is approximately 46 percent of the voltage at the end of the detector load. Thus, at modulation percentages up to approximately 45 percent the cathode of diode CR503 is negative with respect to its anode and the audio signal is faithfully reproduced across the series noise limiter load resistor R520. When the modulation peaks exceed a value representing 45 percent modulation the anode of diode CR503 goes negative with respect to its cathode and the diode stops conducting. Thus, the part of the signal representing more than 45 percent modulation is not reproduced.

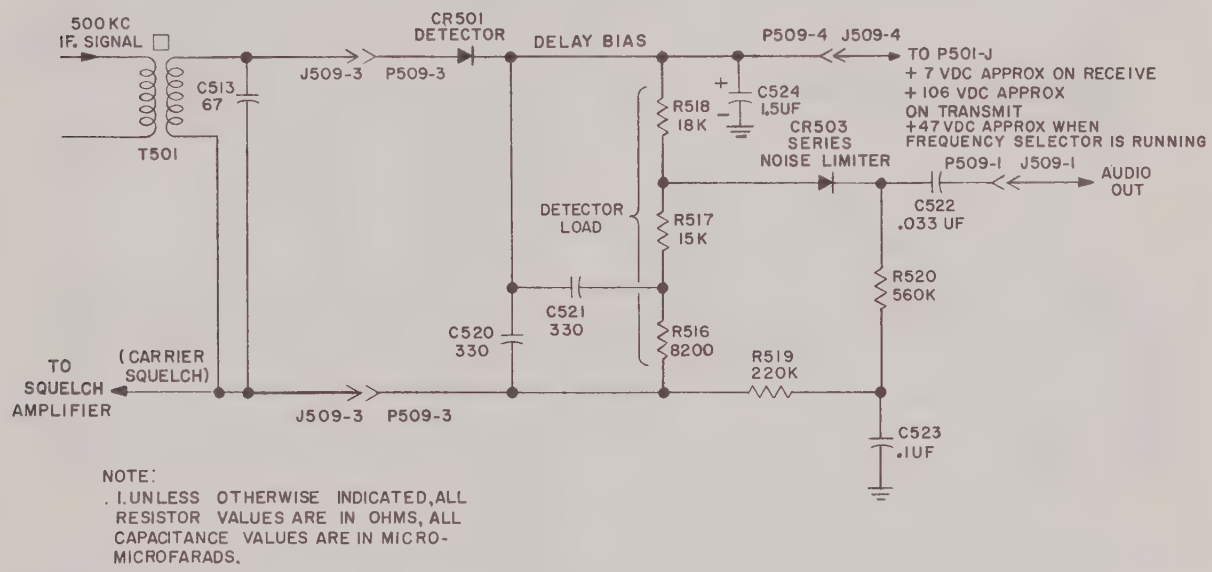



Figure 36. Series Noise Limiter, simplified schematic diagram

g. Delayed avc voltage is developed by the circuit shown in figure 37. Approximately 7 v positive bias is supplied to the cathode of detector diode CR501 on receive (P501-J receives approximately +7 vdc on receive and +106 vdc on transmit). The voltage at the negative end of the detector load is the algebraic sum of this positive bias voltage and a negative voltage approximately equal to the average rms voltage of the if. signal. This delays the development of avc voltage until the signal reaches an amplitude sufficient to overcome the bias. If. avc gate CR504 isolates the if. avc line from the positive bias voltage. Resistor R531, R715, SQUELCH sensitivity control R711 and R712 form the load for the if. avc gate. By varying the load resistance R711 changes the avc voltage and varies the gain of the controlled if. stages. Resistors R529 and R530 in conjunction with capacitors C514 and C515 filter the audio signal from the if. avc line. Rf avc gate CR505 serves the same purpose as CR504 but is connected to a less negative point on the detector load. Thus, the signal amplitude must be higher in order to overcome the bias. This results in more delay for the rf avc and improves the signal-to-noise ratio of the set. Resistor R533, R715, SQUELCH sensitivity control R711 and R712 form the load resistor for CR505. By changing the load resistance R711 changes the avc voltage and changes the gain of the controlled rf stages. Resistor R537 in conjunction with capacitor C526 filters the audio signal from rf avc line.

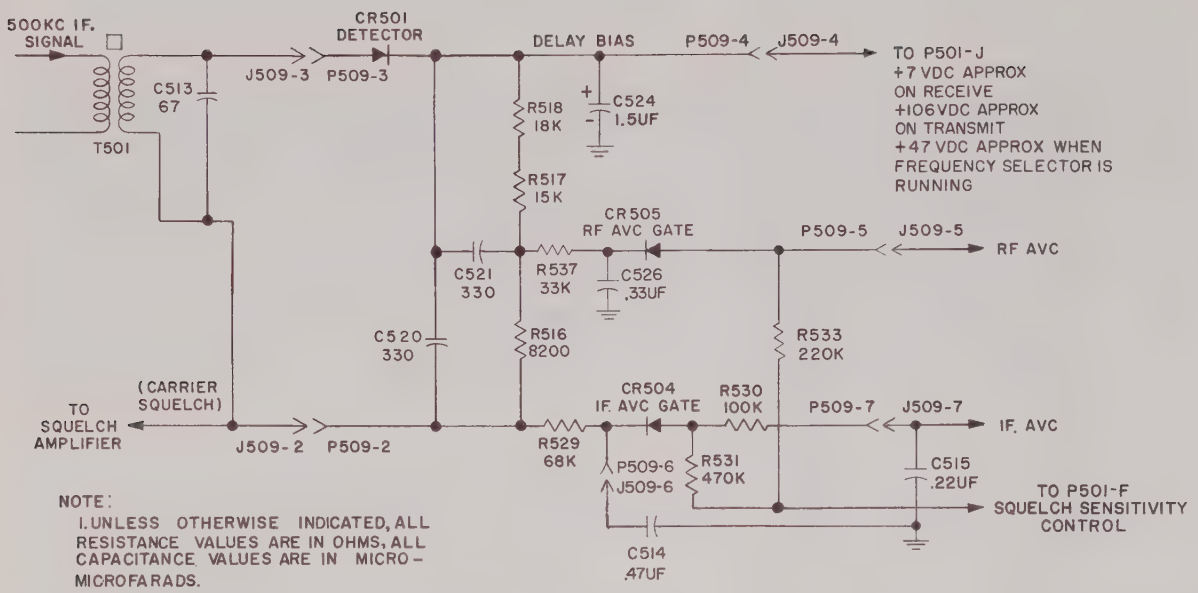
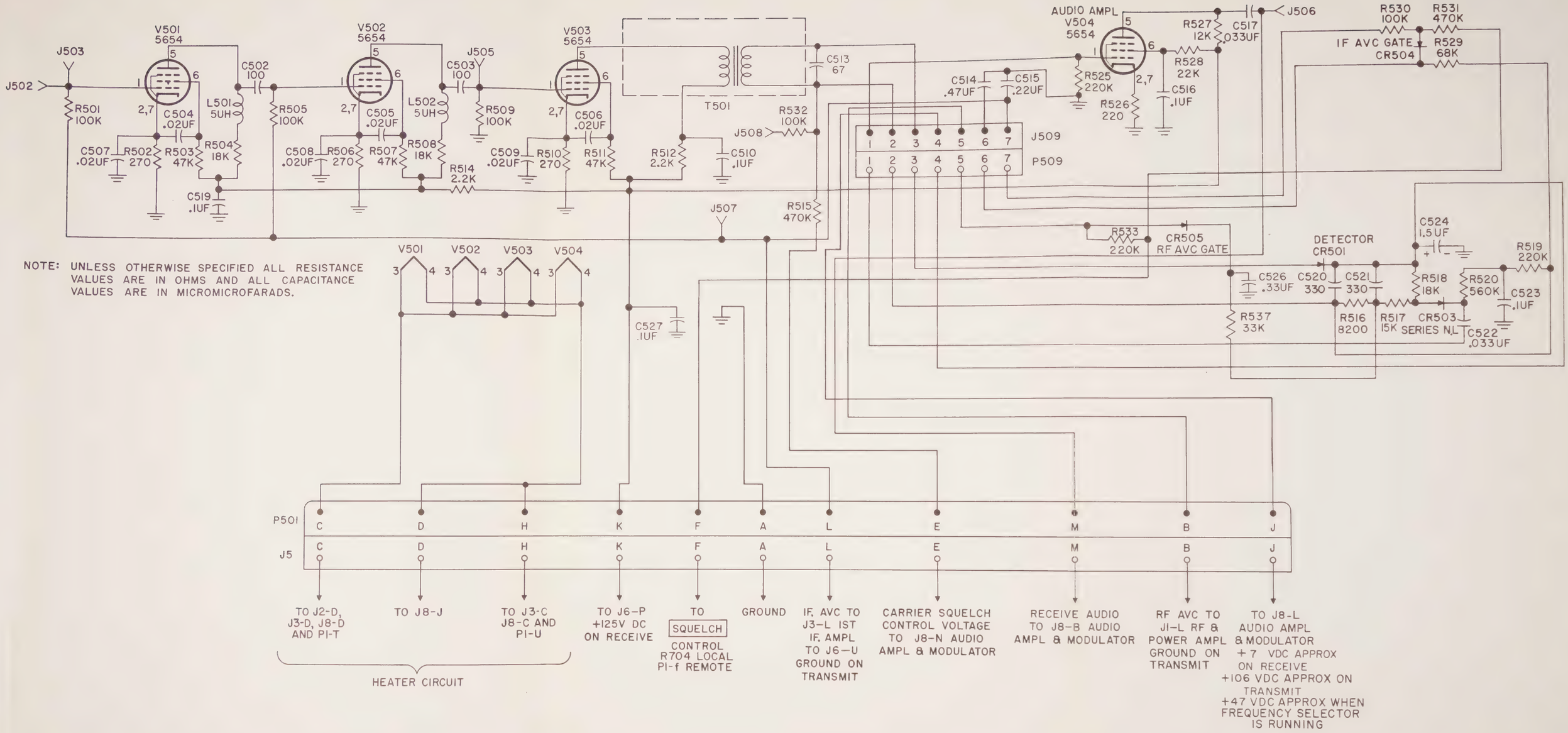



Figure 37. Avc, simplified schematic diagram

h. The audio signal from the series noise limiter CR503 couples to the grid of the first audio amplifier tube V504 through coupling capacitor C522 plug P509 and jack J509. Resistor R526 provides cathode bias for the tube. Tube V504 receives its screen grid voltage from the +125 v line through screen grid voltage dropping resistor R528. Capacitor C516 grounds the screen grid for af. The plate of the tube receives voltage from the +125 v line through its load resistor R527 and the amplified audio signal developed across this resistor is coupled to the grid of audio amplifier tube V804 through dc blocking capacitor C517, the audio filter consisting of choke L801 and capacitors C815 and C806, the squelch relay, resistor R825 and potentiometer R826 (fig. 39).

62. Circuit Analysis of Audio Amplifier and Modulator Subassembly (fig. 39)

a. Audio Amplifier and Modulator on Receive. The audio signal from the first audio amplifier tube V504 couples to the signal-plus-noise to noise squelch sensing circuit at the junction of resistor R802 and capacitor C801. In addition, the audio signal couples to the second audio amplifier tube V804 through the audio filter consisting of choke L801 and capacitors C806 and C807, the squelch relay K801, resistor R825, and potentiometer R826. The audio filter, a low-pass filter with a cutoff frequency of 5000 cycles, limits the high frequency response of the audio amplifier. Potentiometer R826 sets the gain of the audio amplifier on receive and provides the grid leak circuit to ground for V804. Resistor R827 provides the grid leak circuit to ground for V804. Resistor R827 provides cathode bias for V804 and capacitor C814 is the cathode bypass capacitor. The +300 v supply provides plate voltage for V804 through the primary winding of phase splitting transformer T801. The center tapped secondary winding (terminals 3, 4, and 5) of T801 drives the control grids of the output amplifiers V805, V806, V807, and V808. The control grids of tubes V805, V806, V807, and V808 are biased by the -30 v which is applied to the secondary center tap (terminal 4) of T801. The cathodes of tubes V805, V806, V807, and V808 are grounded through metering resistor R828. The voltage across R828 is applied to the meter circuits and indicates percentage of modulation on transmit by indicating the amount of cathode current drawn by the tubes. Screen grid voltage for tubes V805, V806, V807, and V808 is supplied directly from the +125 v supply. Plate voltage is supplied from the +300 v supply through the primary winding of transformer T802. The tapped secondary winding of T802 (terminals 6, 7, and 8) feeds the amplified signal to the following outputs:




NOTE: UNLESS OTHERWISE SPECIFIED ALL RESISTANCE VALUES ARE IN OHMS AND ALL CAPACITANCE VALUES ARE IN MICROMICROFARADS.

Figure 38. 500 kc If. Amplifier, schematic diagram

Speaker through T/R relay K802 and VOLUME control R714.

Headset through T/R relay K802 and VOLUME control R710.

Remote Audio through T/R relay K802.

50 mw Audio through T/R relay K802, and R601.

Retransmit Audio through T/R relays K802 and K601, R601, and interphone relay K602 (on receive).

Set 1 Audio through interphone relay K602 (on interphone).

b. Audio Amplifier and Modulator on Transmit (fig. 39). The audio signal from the radio microphone couples to the control grid of the transmit preamplifier V803 through T/R relay K802, dc blocking capacitor C809 and resistor R818. Microphone current for the carbon microphone is supplied from the -30 vdc supply through the resistance-capacitance filter R817 and C816. Resistors R818, R820, and R819 are the grid leak circuit to ground for V803. Bypass capacitor C819 filters the ac components from the limiting control voltage supplied from V802B. Resistor R821 provides cathode bias for V803 and C811 is the cathode bypass capacitor. Screen grid voltage for V803 is supplied from the +125 v supply through the voltage divider consisting of resistors R823 and R822. Capacitor C812 bypasses af signals to ground. The plate voltage for V803 is supplied from the +125 v supply through plate load resistor R824. The amplified audio signal couples to the control grid of V804 through dc blocking capacitor C813 and relay K802. The remaining stages operate as on receive except that the outputs from T802 are as follows:

Modulated B+ from terminal 2 to the plate of V105 through high voltage relay K2, R839 and Z108.

Modulated B+ from terminal 2 to the plate of V104 through high voltage relay K2, R838 and T/R relay K601.

Modulation for V105 screen voltage from terminal 3 through T/R relay K802 and capacitors C601 and C602.

Muted Sidetone to speaker from terminal 8 through R833, T/R relay K802 and VOLUME control R714.

Remote Audio from terminal 8 through T/R relay K802.

50 mw Audio from terminal 8 through T/R relay K802 and R601.

Sidetone to headset from terminal 8 through T/R relay K802 and VOLUME control R710.

The remaining secondary winding (terminals 10 and 11) in conjunction with V802B provides the limiting voltage which prevents overmodulation. Potentiometer R831, connected across this winding provides adjustment of the limiting level. The voltage divider consisting of R830 and R832 connected to the +125 v supply provides delay bias to the cathode of the limiter rectifier V802B. Capacitor C815 provides a low impedance path to ground for the audio signal on terminal 11 of T802.

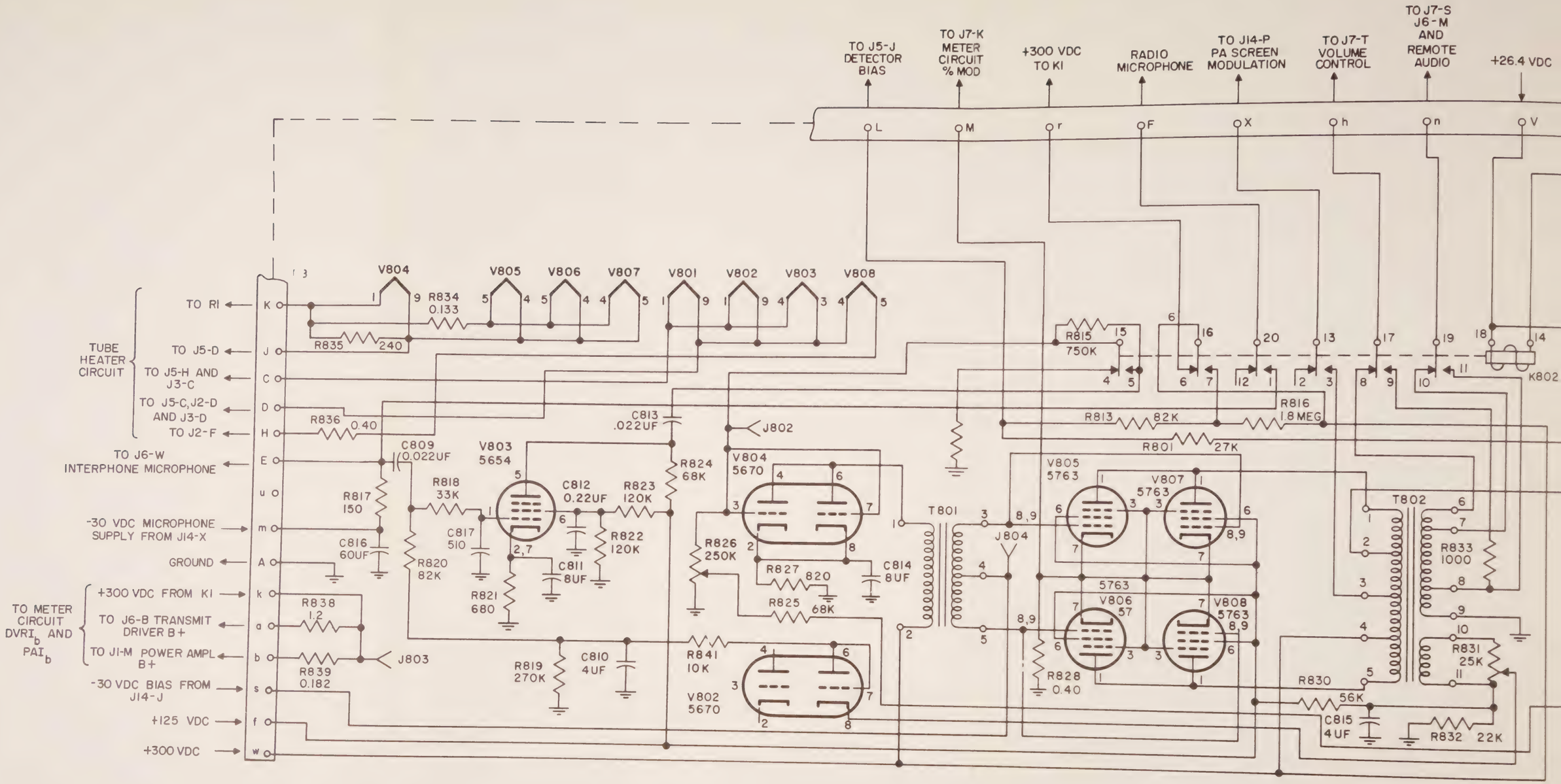
c. Audio Amplifier and Modulator on Interphone. On interphone the audio amplifier and modulator operates as on transmit except that the load on T802 represented by the transmit driver and power amplifier is removed by T/R relays K601 and K802. The voltage divider consisting of R815 and R840, placed in the interphone microphone input circuit by T/R relay K802, reduces the drive to V804. Reduced drive to V804 results in reduced output from the output amplifiers and compensates for the reduced load on T802. Interphone relay K602 connects the interphone microphone to the control grid circuit of V803 and to the -30 vdc microphone current source. The audio outputs are the same as on receive except that interphone relay K602 disconnects the retransmit audio output and connects the set 1 audio output.

d. Audio Output Chart.

| FUNCTION | LEVEL | IMPEDANCE | CONNECTOR | AFFECTED BY VOLUME CONTROL | REMARKS |
|---|---|---|---|---|---|
| 1. SPEAKER | 1.0 WATT | 600 | P1-G<br>J702-L<br>J703-L | YES | REC AUDIO<br>INT AUDIO<br>MUTED ON SIDETONE |
| 2. AF OUTPUT | 100 MW | 600 | P1-L<br>J702-A<br>J703-A | YES | REC AUDIO<br>INT AUDIO<br>SIDETONE |
| 3. REMOTE HIGH LEVEL AUDIO | 100 MW PER HDST | 82 to 600 ohms | P1-J | NO | REC AUDIO<br>INT AUDIO<br>SIDETONE |
| 4. REMOTE LOW LEVEL AUDIO | 50 MW | 600 | P1-R | NO | REC AUDIO<br>INT AUDIO<br>SIDETONE |
| 5. RETRANSMISSION AUDIO | 50 MW | 600 | P1-W | NO | REC AUDIO ONLY |
| 6. SET 1 AUDIO | (CONNECTED TO REMOTE, HIGH LEVEL, AUDIO ON INTERPHONE ONLY) | | | | |

e. Squelch Amplifier. The squelch amplifier receives its control voltage from the negative end of the detector load through R515 (carrier squelch), or from a sensing circuit through R806( signal-plus-noise to noise squelch). The voltage divider, consisting of resistors R809, R810, and R811, provides operating voltages for V801A and V801B. The cathode of V801A is connected to the junction of resistors R809 and R811. The cathode of V801B is connected to the junction of resistors R810 and R811. Thus the cathode of V801B is at a much higher positive potential than the cathode of V801A. The control grid of V801B and the plate of V801A are connected to the cathode of V801B through resistor R812. The plate of V801B is connected to the +300 v supply through the coil of the squelch relay K801. When no signal is being received, there is a positive bias on the control grid of V801A. This bias is the result of the delay bias on the detector load or the reference bias on the sensing circuit (depending upon which squelch circuit is being used). Tube V801A conducts drawing current through R812 which causes the control grid of V801B to go negative with respect to its cathode. Tube V801B cannot conduct due to the negative bias on its control grid. Relay K801 is de-energized and the audio line from the first audio amplifier V504 to the grid of the second audio amplifier V804B is open. When a signal is received the negative voltage developed by the carrier across the detector load (carrier squelch), or the negative voltage developed in the sensing circuit (signal-plus-noise to noise squelch), biases V801A to cutoff. No current through R812 results in no voltage drop across R812 and the grid of V801B approaches the same potential as the cathode. Tube V801B conducts and squelch relay K801 energizes, closing the circuit from the first audio amplifier V504 to the second audio amplifier V802B.

f. Signal-Plus-Noise to Noise Squelch Sensing Circuit. The signal-plus-noise to noise squelch is put into operation by disconnecting the grid (pin 3) of V801A from P801-N and connecting it to resistor R806 which is connected to the slider of potentiometer R805. The voltage divider consisting of resistors R837 and R803 provides a positive bias of approximately 2 vdc on receive which is applied to the junction of crystal rectifiers CR801 and CR802. The low-pass filter consisting of resistor R802 and capacitor C813 passes the audio signal to dc blocking capacitor C804 which couples the audio signal to crystal rectifier CR801. Crystal rectifier CR801 rectifies the signal and develops a negative voltage at the end of R805 that is connected to its


TO J5-J DETECTOR BIAS
TO J7-K METER CIRCUIT % MOD
+300 VDC TO KI
RADIO MICROPHONE
TO J14-P PA SCREEN MODULATION
TO J7-T VOLUME CONTROL
TO J7-S J6-M AND REMOTE AUDIO
+26.4 VDC
L
M
r
F
X
h
n
V
TUBE HEATER CIRCUIT
TO RI
TO J5-D
TO J5-H AND J3-C
TO J5-C, J2-D AND J3-D
TO J2-F
TO J6-W INTERPHONE MICROPHONE
-30 VDC MICROPHONE SUPPLY FROM J14-X
GROUND
TO METER CIRCUIT DVRI$_b$ AND PAI$_b$
+300 VDC FROM KI
TO J6-B TRANSMIT DRIVER B+
TO J1-M POWER AMPL B+
-30 VDC BIAS FROM J14-J
+125 VDC
+300 VDC
K
J
C
D
H
E
u
m
A
k
a
b
s
f
w
V804
V805
V806
V807
V801
V802
V803
V808
R834 0.133
R835 240
R836 0.40
C809 (0.022UF
R817 150
C816 60UF
R818 33K
R820 82K
V803 5654
C817 510
R821 680
C812 0.22UF
C811 8UF
R823 120K
R822 120K
C813 .022UF
R824 68K
J802
V804 5670
R826 250K
R827 820
R825 68K
C814 8UF
R838 1.2
R839 0.182
J803
R819 270K
C810 4UF
R841 10K
V802 5670
T801
J804
R815 750K
R816 1.8 MEG
R813 82K
R801 27K
V805 5763
V807 5763
V806 57
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R828 0.40
T802
R833 1000
R831 25K
R830 56K
C815 4UF
R832 22K
K802

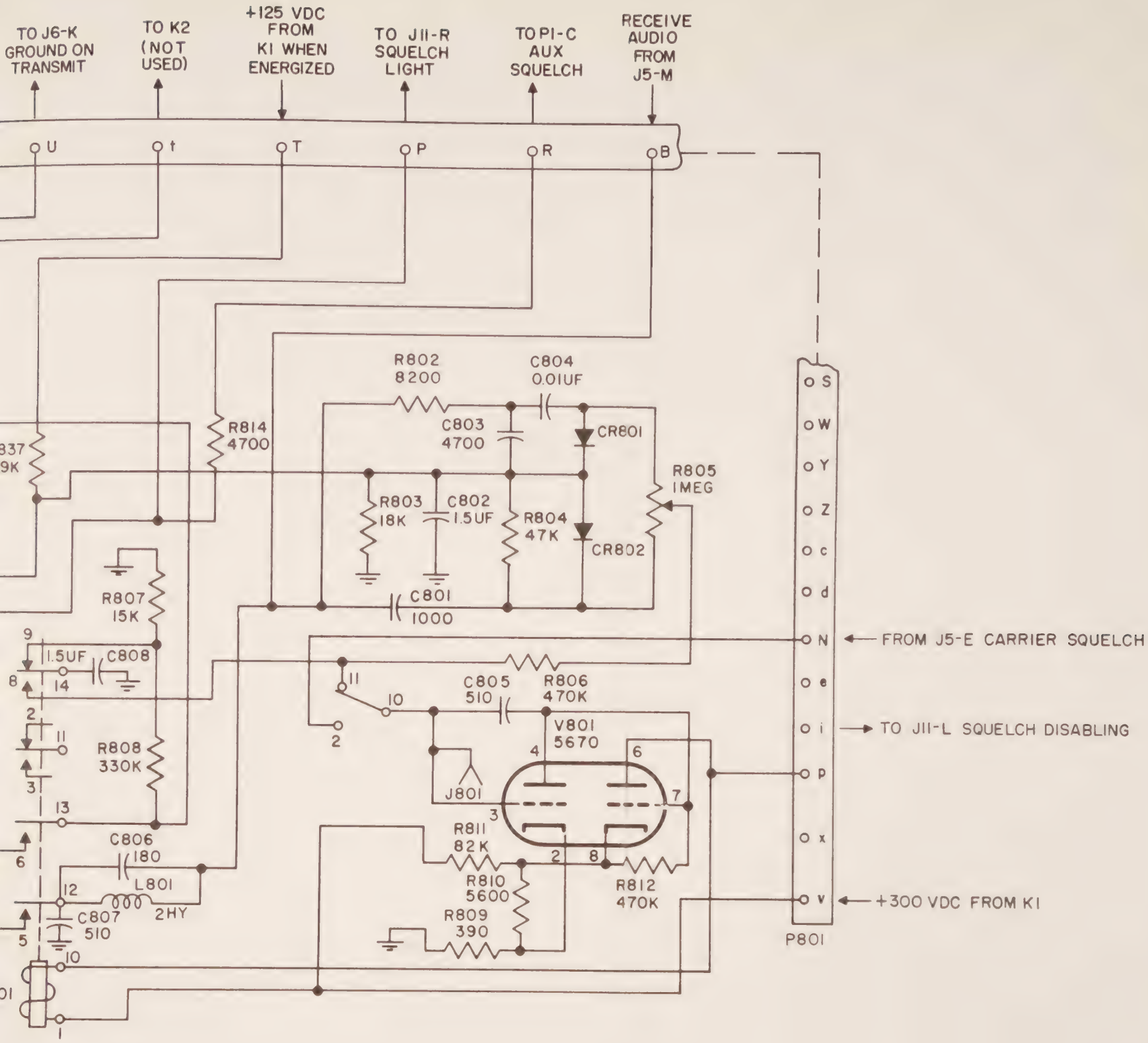


Figure 39. Audio Amplifier and Modulator, schematic diagram

anode. The high-pass filter consisting of capacitor C801 and resistor R804 passes the high frequency noise to crystal rectifier CR802. Crystal rectifier CR802 rectifies the noise and develops a positive voltage at the end of R805 that is connected to its cathode. Thus the voltage distribution across R805 is dependent upon the ratio of the amplitude of the audio signal to the amplitude of the noise (signal-plus-noise to noise ratio). The signal-plus-noise to noise ratio that will cut off V801A and open the squelch is determined by the setting of potentiometer R805.

63. Circuit Analysis of Frequency Selector Subassembly (fig. 40)

The frequency selector subassembly provides automatic channel selection on 19 preset channels which may be selected from either the front panel or the remote control unit. Information is electrically transferred from the CHANNEL SELECTOR switch to the frequency selector subassembly where it is converted to mechanical tuning information for tuning the various oscillators and amplifiers in the radio set. Five accurately positioned tuning shafts, driven by the frequency selector, automatically tune the set to the desired frequency. This process requires from one to five seconds, the exact time depending upon the sequence of frequency selection.

a. Local Preset Channel Selection. Operating CHANNEL SELECTOR switch S705 to the desired preset channel completes the circuit to control relay K1204. K1204 energizes by means of the completed ground circuit through seeking switch S1205 and CHANNEL SELECTOR switch S705. Relay K1204 performs the following functions:

(1) Removes the 26.4 vdc supply from the other three positioner relays K1201, K1202, and K1203 disabling these systems.

(2) Applies 26.4 vdc to the tuning motor which causes it to run.

(3) Lifts the pawl from the detent wheel which allows the motor to drive the indicator and detent wheels, the preset channel memory drum and the preset channel seeking switch S1205. As soon as the rotor of S1205 finds the one position that opens the ground circuit to K1204, relay K1204 de-energizes dropping the pawl into the detent wheel and accurately positioning the memory drum. The K1204 contact returns to its normal position closing the circuit to the remaining three positioner relays.

Note. All positioning assemblies consisting of relay, detent wheel and pawl, are adjusted to prevent opening of the contact supplying power to the motor unless the pawl is in a notch in the detent wheel. The tuning motor drives the four positioner systems through slip clutches which permit the motor to run when any or all of the positioner systems are at rest without damaging the gear train.

b. Remote Preset Channel Selection. When the CHANNEL SELECTOR switch S705 is in the REMOTE position the remote preset channel seeking switch S1206 replaces S1205 in the seeking circuit and the CHANNEL SELECTOR switch in the remote control unit replaces CHANNEL SELECTOR switch S705 on the front panel. With the above exceptions remote preset channel selection is the same as local preset channel selection.

c. Automatic Frequency Selection.

(1) The 19 channel frequencies are preset on a direct reading memory drum accessible through the door in the front panel. Four pins must be positioned for each preset channel and reference numbers adjacent to the pin tracks indicate the preset channel frequency. When the preset channel memory drum has been positioned (paragraph 63.a., above), the four pins representing the selected preset channel frequency operate contacts on switch S1210. The left pin opens one of the two normally closed contacts of switch S1210A. The open contact represents the hundreds megacycle digit (2XX.X mc or 3XX.X mc) of the preset channel frequency. The left-center pin opens one of the ten normally closed contacts of switch S1210B. The open contact represents the tens megacycle digit (XOX.X mc, XIX.X, X2X.X, etc) of the preset channel frequency. The right-center pin closes one of the ten normally open contacts of switch S1210C. The closed contact

represents the units megacycle digit (XX0.X mc, XX1.X mc, XX2.X mc, etc) of the preset channel frequency. The right pin closes one of ten normally open contacts of switch S1210D. The closed contact represents the tenths megacycle digit (XXX.0 mc, XXX.1 mc, XXX.2 mc, etc) of the preset channel frequency.

(2) Assume that preset channel 19 is selected, that the preset channel selection cycle is complete, and that the preset channel 19 frequency is 399.9 mc. The left pin, representing the hundreds digit 3, removes the ground from the terminal designated 30 on blanking switch S1202. Relay K1201 energizes due to the closed ground circuit through the closed contact of S1210A and the terminal designated 20 on switch S1202. This applies power to the tuning motor and lifts the pawl from the 10 mc detent wheels, S1201, S1202, and the 18-position, 10 mc shaft. The left-center pin, representing the tens digit 9, removes the ground from the positions designated 39 and 29 (these positions are in parallel) on S1201. The rest of the positions on S1201 are grounded by the normally closed contacts of S1210B. Since the first and second digits of the assigned frequency are 3 and 9 the seeking system must find 39 and not 29. Switch S1202 rear prevents the system from stopping on 29; therefore, it can stop only on 39. Switch S1202 is driven through a gear reduction of 2:1 and the front section blanks out 180° of rotation. This blanks out alternate cycles of seeking switch S1201 and is necessary because the uhf tuners tune only over 180°.

(3) Simultaneously with the above action the right-center pin, representing the units digit 9, closes the contact on S1210C corresponding to terminal 9 of seeking switch S1203. This closes the ground circuit from the coil, of relay K1202. Relay K1202 energizes closing the 26.4 v circuit to the tuning motor and releasing the 1.0 mc indicator and detent wheels, S1203 and the 10-position, 1.0 mc tuning shaft to rotate. Switch S1203 rotates until the one open position on its front rotor finds the grounded contact. This opens the ground circuit to K1202 and the relay de-energizes, stopping the 1.0 mc detent wheel and the functions coupled to it. Relay K1201 is energized whenever S1203 rear goes through position A. Thus the 10 mc Autopositioner is recycled to prevent error in the 10 +1.0 mc differential which might be introduced when the differential cam follower goes over the high point of the cam as the 1.0 mc positioner goes from 0 to 9.

(4) The operation of the 0.1 mc selector is the same as that of the 1.0 mc selector. Terminal A is connected to the common of S1203 energizing K1202 whenever the 0.1 mc positioner rotates through position A. This causes the 1.0 mc tuning system to recycle to the same frequency position and eliminates the possibility of error in the 1.0 plus 0.1 mc differential output. The differential cam follower going over the high point on the cam as the 0.1 mc positioner passes from 0.0 to 0.9 introduces this possible error.

d. Manual Frequency Selection. When CHANNEL SELECTOR switch S705 is in the MANUAL position the channel memory drum rotates to the M position. In this position a nylon bar opens all contacts on switches S1210A and S1210B (S1210C and S1210D are normally open). Switch S705A is operated by a cam to connect S706 in place of S1210A and S1210B. Switches S706, S707, and S708 now take the place of the memory drum switch S1210. Frequency selection is accomplished by setting switches S706, S707, and S708 to the digits of the desired frequency. The frequency selector subassembly operates as for automatic frequency selection except that switches S706, S707, and S708 instead of S1210 control the operation. The Autopositioners in the frequency selector always rotate in the same direction. The frequency selectors always rotate from a high frequency position to a lower frequency position and the channel selector always rotates from a low channel number to a higher channel number. For this reason when tuning from a low frequency to a higher frequency the cycle is longer than when tuning in the opposite direction and when tuning from a high numbered channel to a lower numbered channel the channel selection cycle is longest.

64. Circuit Analysis of Meter Switch
(fig. 41)

a. Meter Switch S704 on SWR. When METER switch S704 is in the SWR position meter M701 indicates reflected power on the transmission line. In the directional coupler, currents flowing in the short section of line, designated B, due to inductive coupling with the transmission line are cancelled in one direction and re-enforced in the other by currents due to capacitive coupling between line B and the transmission line. At

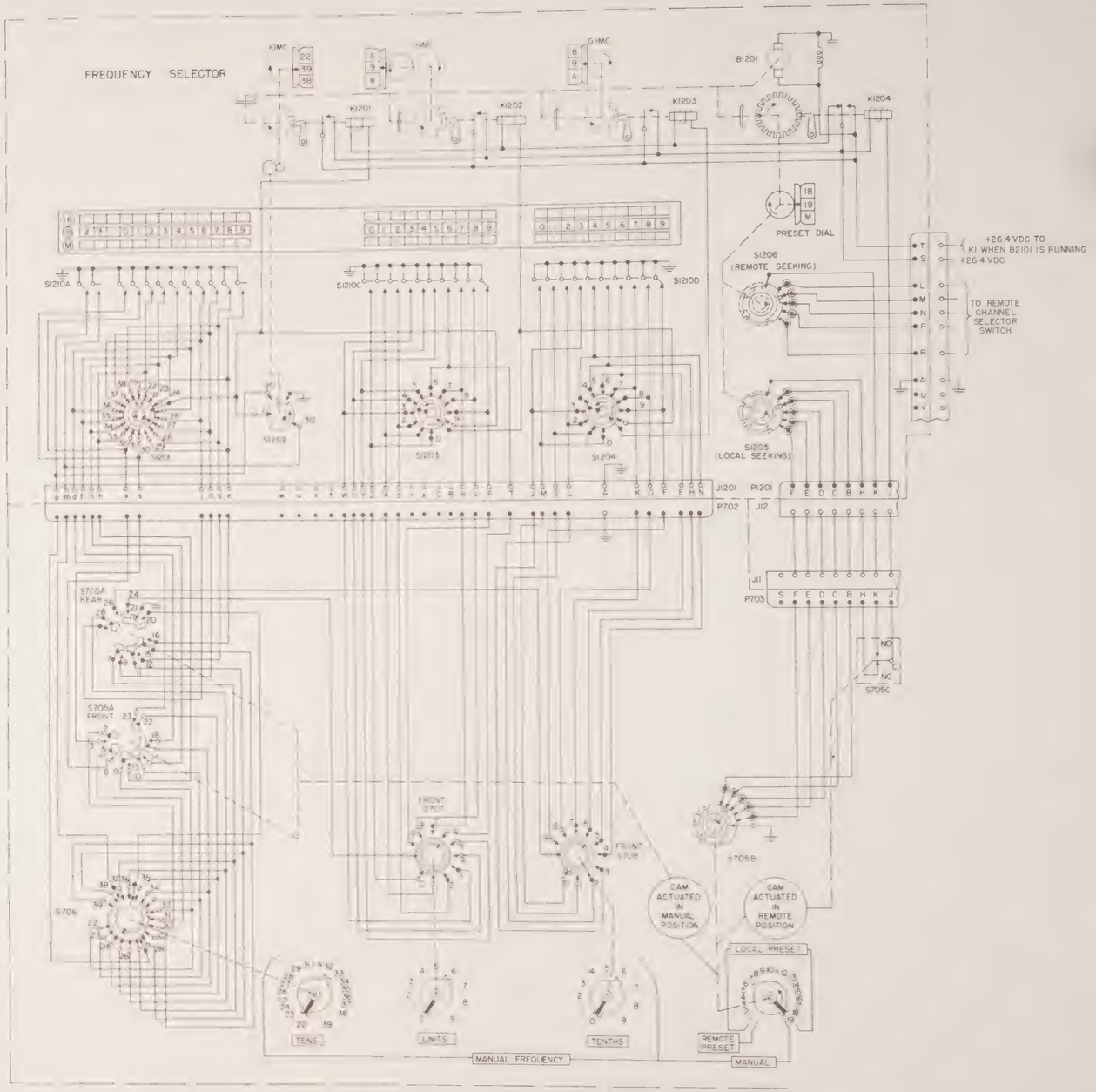


Figure 40. Frequency Selector, schematic diagram

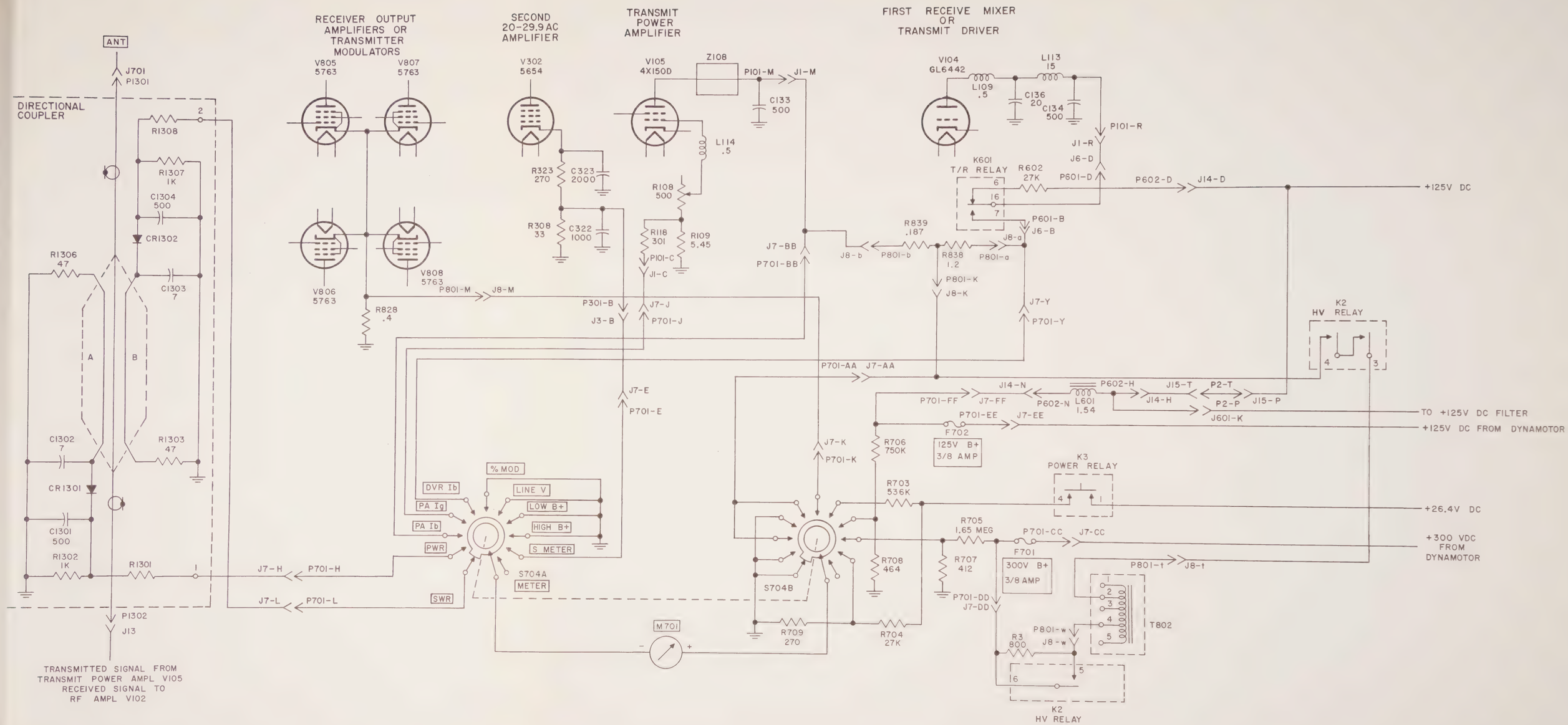


Figure 41. METER Switch S704, simplified schematic diagram

the metered end of line B currents induced by the incident waves are cancelled and currents induced by the reflected wave are re-enforced. At the terminated end of line B currents induced by the incident wave are re-enforced and currents induced by the reflected wave are cancelled. Resistor R1303 terminates the transmitter end of line B in its characteristic impedance; therefore, R1303 absorbs the currents induced by the incident wave. Inherently, the output from a directional coupler varies directly with both frequency and power. Capacitor C1303 presents a load impedance that varies inversely with frequency and, therefore, compensates for the variation in output with frequency. This results in an output that is nearly independent of frequency (in the range covered by this set) and is directly proportional to power. In the directional coupler described in this paragraph the metered output is proportional to reflected power. Crystal diode CR1302 rectifies the rf current at the metered end of line B. Capacitor C1304 filters the output of CR1302. Resistor R1307 is the load for CR1302 and the voltage developed across R1307 is coupled to the METER switch S701 through calibrating resistor R1308.

b. Meter Switch S704 on PWR. When METER switch S704 is in the PWR position meter M701 indicates power output. The directional coupler composed of the short section of line, designated A and its associated circuitry is similar in operation to that described in paragraph 64.a. above except that the terminating resistor R1306 is connected to the antenna end of line A and the metering circuit is connected to the transmitter end. Therefore, the voltage applied to METER switch S704 is proportional to the power output.

c. Meter Switch S704 on PA $I_b$. When METER switch S704 is in the PA $I_b$ position meter M701 indicates power amplifier plate current. METER switch S704 connects meter M701 across resistor R839. Plate current of power amplifier tube V105 flows through R839 developing across it a voltage proportional to the current through the tube.

d. Meter Switch S704 on PA $I_g$. When METER switch S704 is in the PA $I_g$ position meter M701 indicates power amplifier grid current. METER switch S704 connects meter M701 across resistor R109 which is part of the grid leak to ground for power amplifier tube V105. Thus the voltage developed across R109 is proportional to the power amplifier grid current.

e. Meter Switch S704 on DVR $I_b$. When METER switch S704 is in the DVR $I_b$ position meter M701 indicates driver plate current. METER switch S704 connects meter M701 across resistor R838. Plate current of driver tube V104 flows through R838 developing across it a voltage proportional to the amount of current.

f. Meter Switch S704 on % MOD. When METER switch S704 is in the % MOD position meter M701 indicates the percentage of modulation. METER switch S704 connects meter M701 across resistor R828. Modulator cathode current flowing through R828 develops across it a voltage proportional to the amount of current. Thus the meter reading is proportional to the modulator cathode current providing an indication of the modulator output.

g. Meter Switch S704 on Line V. When METER switch S704 is in the LINE V position meter M701 indicates the voltage on the +26.4 v line supplying primary power to the set. METER switch S704 connects meter M701 in series with R703 from the +26.4 v line to ground.

h. Meter Switch S704 on Low B+. When METER switch S704 is in the LOW B+ position meter M701 indicates the output voltage of the +125 v supply. METER switch S704 connects meter M701 across resistor R708. Resistor R708 is part of a voltage divider composed of resistors R706 and R708 connected in series from the +125 v line to ground.

i. Meter Switch S704 on High B+. When METER switch S704 is in the HIGH B+ position meter M701 indicates the output voltage of the +300 v supply. METER switch S704 connects meter M701 across resistor R707. Resistor R707 is part of a voltage divider composed of resistors R705 and R707 connected in series from the +300 v line to ground.

j. Meter Switch S704 on S-Meter. When METER switch S704 is in the S-METER position meter M701 indicates the strength of the received signal. METER switch S704A connects the negative side of meter M701 to resistor R308 which is a part of the cathode bias circuit for the second 20 to 29.9 mc amplifier V302. METER switch S704B connects the positive side of meter M701 to voltage divider resistors R704 and R709. Resistors R704 and R709 provide a voltage which balances that developed across R308 with no signal. When

a signal is received, avc action reduces the current through V302. This reduces the voltage across R308 and results in a meter reading that is proportional to the amplitude of the received signal.

65. Circuit Analysis of Power Supply Circuits
(fig. 42)

a. Primary Power. The vehicular electrical system supplies primary power to Receiver-Transmitter RT-323(XC-2)/VRC-24 through the primary power cable, rear plug P1, noise filter FL-1, fuse F704 and power relay K3. Operating the POWER switch momentarily to its clockwise position energizes power relay K3. Operating the POWER switch momentarily to its counterclockwise position de-energizes K3. When the relay contacts are closed +26.4 is applied to relay, tube heater, frequency selector, meter and dynamotor circuits. Fuses F703 and F704 protect the set against low voltage shorts and overloads. Selenium rectifier CR1 connected in series with relay K3 coil protects the set against polarity reversal of the primary power supply.

b. B+ and Bias. The dynamotor supplies +125 vdc, -30 vdc and +300 vdc. Capacitors C606, C607, C608, and C609 filter the +300 v supply. Resistors R610, R611, R612, and R613 prevent damage to the capacitors by equalizing the voltages across them. Filter choke L601 in conjunction with filter capacitors C603, C604, and C605 filters the +125 v supply. Resistors R607, R608, and R609 prevent damage to the capacitors by equalizing the voltages across them. Fuses F702 in the +125 v line and F701 in the +300 v line protect the dynamotor against B+ shorts and overloads. Capacitors C611 and C612 filter the -30 v bias and provide the ground circuit for capacitors C603, C604, and C605.

66. Circuit Analysis of Tube Heater Circuit

a. Heater voltage for the tubes in Receiver-Transmitter RT-323(XC-2)/VRC-24 is supplied from the 26.4 v source. The tube heaters are connected in series parallel as shown in figure 43.

67. Transmit-Receive-Interphone Control

a. Figure 44 shows the transmit-receive-interphone circuits on receive. On transmit the radio control line is grounded and relays K2, K101, K102, K401, K601, and K802 are energized. On interphone the interphone control line is grounded and relay K602 is energized. Relays K2, K101, K102, K401, K601, and K802 are de-energized on receive and interphone. Relay K602 is de-energized on receive and transmit. Work relay K1 disables the power amplifier, modulator and signal plus noise to noise squelch whenever the frequency selector motor is energized.

## Section III. THEORY OF CONTROL C-1439(XC-2)/VRC-24

68. Circuit Analysis of Control C-1439(XC-2)/VRC-24
(fig. 45)

a. Control C-1439(XC-2)/VRC-24 provides remote control of Receiver-Transmitter RT-323(XC-2)/VRC-24. CHANNEL selector switch S1703 provides for selection of 19 preset channels when the CHANNEL SELECTOR switch in the receiver-transmitter is in the remote position.

b. The ON/OFF switch S1705 is a two position momentary contact switch which energizes relay K3 in the receiver-transmitter when operated momentarily to the ON position. When operated momentarily to the OFF position S1705 de-energizes relay K3.

c. SELECTOR switch S1704 has five positions. Four positions are blank and can be wired to connect the control into other systems. Position 3 connects the control into the AN/VRC-24 system.

d. The RADIO-INT-RADIO switch S1706 is a three position switch. A spring returns the switch to the INT position from either RADIO position. A latch is provided to lock the switch in the clockwise RADIO position. When in the INT position, switch S1706 connects the af inputs J1701-C and J1702-C and the af interphone inputs J1701-K and J1702-K to the af interphone mike input TB1701-1. When in the INT position S1706 also connects the radio control inputs J1701-F and J1702-F and the interphone control inputs J1701-J

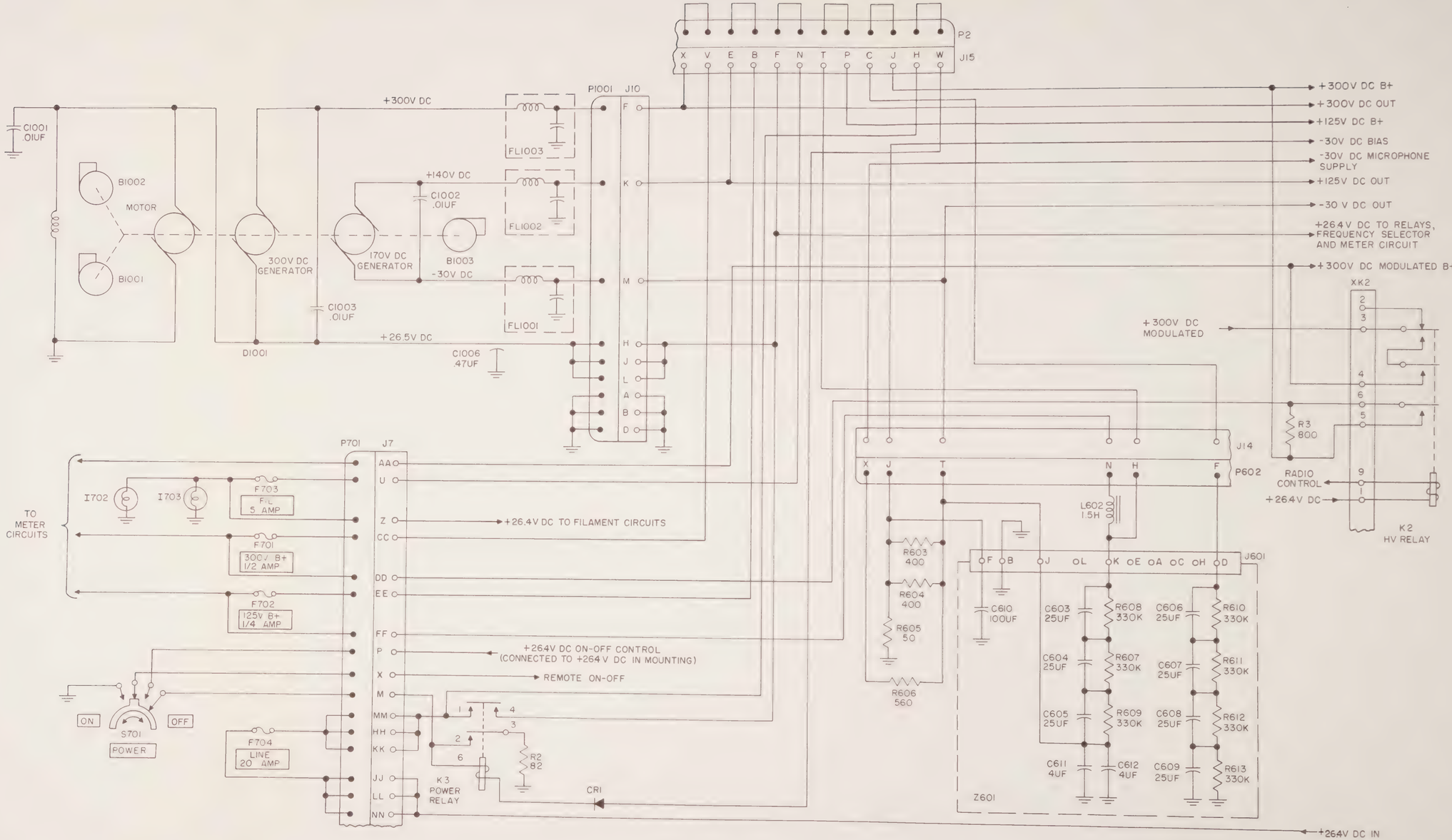


Figure 42. Power Supply, simplified schematic diagram

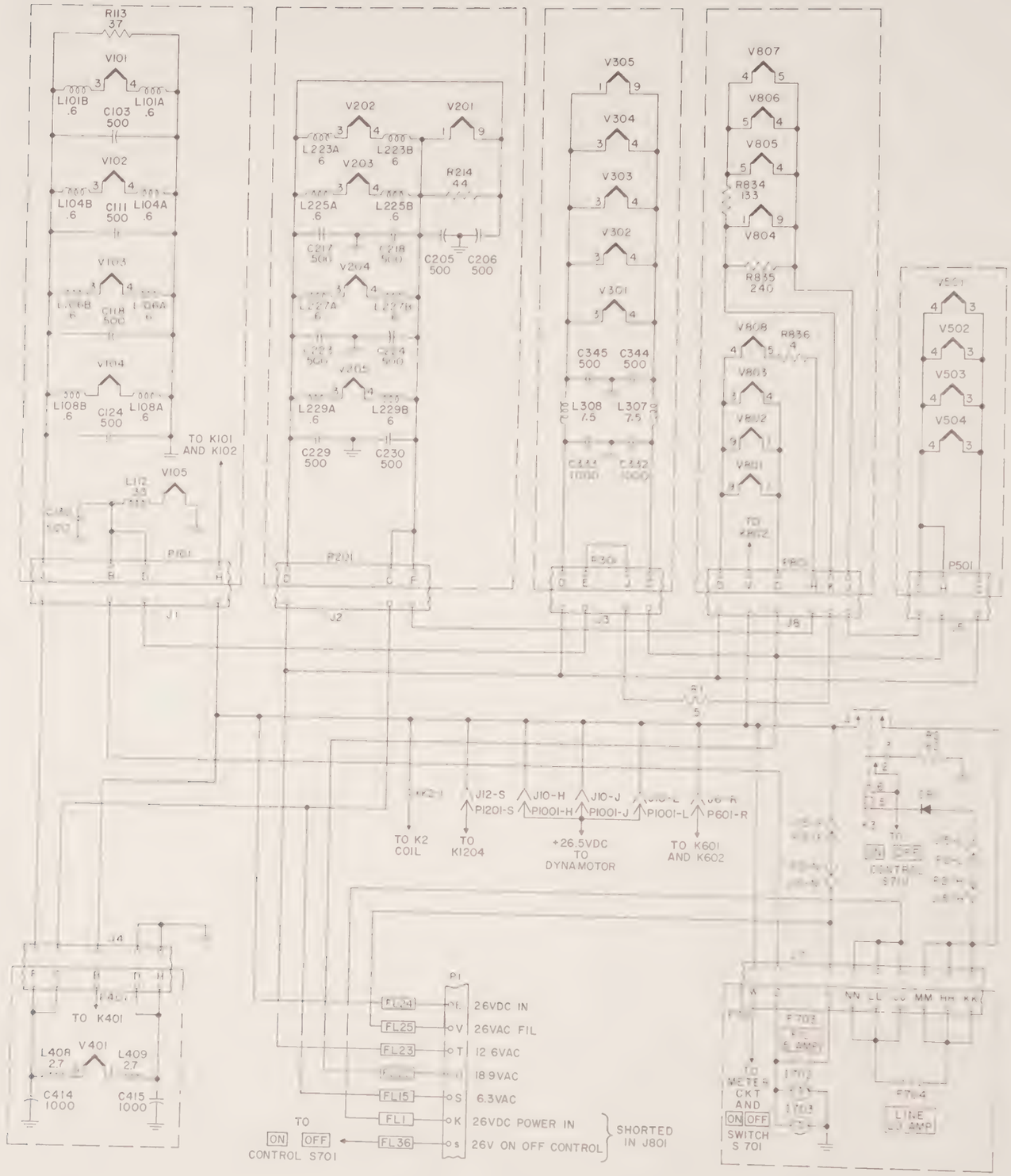


Figure 43. Tube Heater Circuit, simplified schematic diagram

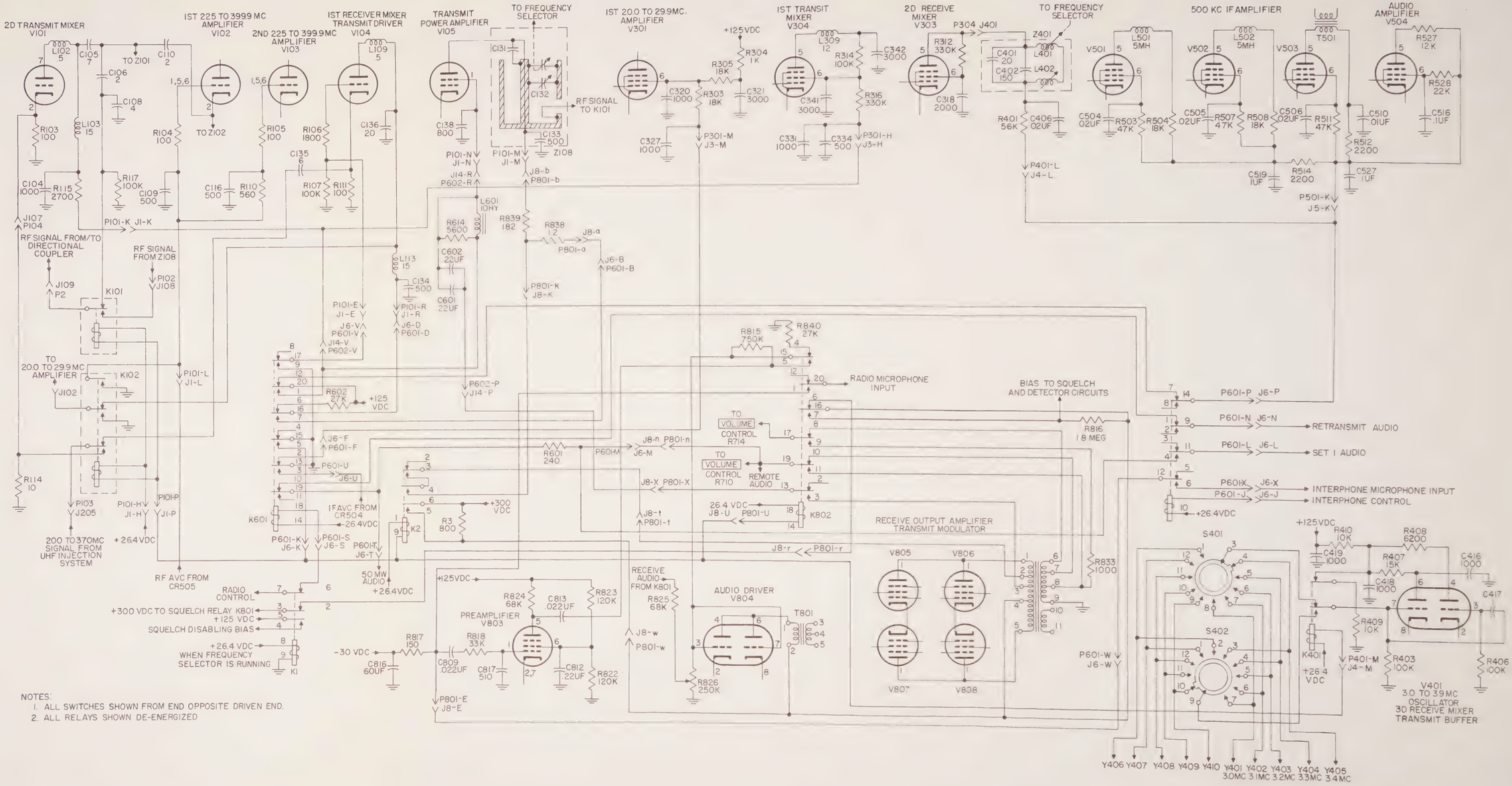


Figure 44. Transmit-Receive-Interphone Control Circuits

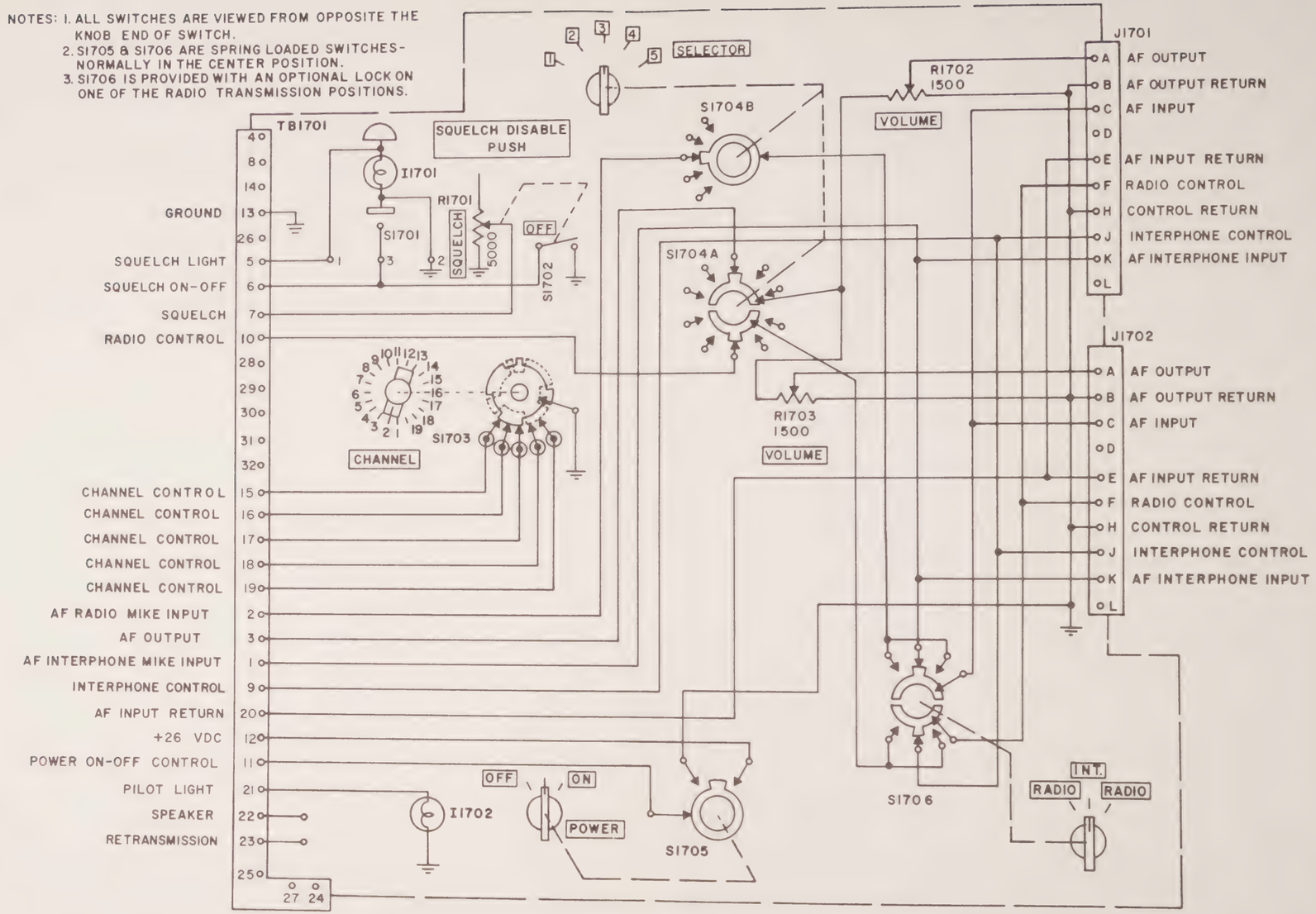


Figure 45. Control C-1439(XC-2)/VRC-24, schematic diagram

and J1702-J to the interphone control line TB1701-9. When in either RADIO position switch S1706 connects the af inputs J1701-C and J1702-C to the radio mike input TB1701-2 and connects the radio control inputs J1701-F and J1702-F to the radio control line TB1701-10.

e. VOLUME control R1702 controls the level of the af output J1701-A and VOLUME control R1703 controls the level of the af output J1702-A.

f. SQUELCH DISABLE PUSH switch S1701 incorporates the squelch indicator light I1701. I1701 lights whenever a signal strong enough to operate the squelch is received or when the squelch is disabled. Pushing on the light as a push button operates S1701 and disables the squelch.

g. SQUELCH control R1701 controls the squelch sensitivity when the CHANNEL SELECTOR switch on the receiver-transmitter is in the REMOTE position. When R1701 is rotated all the way counterclockwise it operates S1702 and disables the squelch circuit.

h. Pilot light I1702 lights when the set is turned on.

69. Interconnecting Circuits

The interconnecting circuits between Control C-1439(XC-2)/VRC-24 and Receiver-Transmitter RT-323(XC-2)/VRC-24 are listed in the following table.

| Function | Rear Plug P1 Pin | Mounting Terminal Boards TB1801 and TB1802 Terminals | Remote Unit Terminal Board TB1701 Terminal |
|---|---|---|---|
| Af output (Remote Audio) | J | 26 | 3 |
| Af radio mike input | a | 18 | 2 |
| Af interphone mike input | g | 17 | 1 |
| Radio control | e | 30 | 10 |
| Interphone control | d | 31 | 9 |
| On-off control | r | 36 | 11 |
| Pilot light | E | 2 and 3 | 21 |
| Channel control | j | 34 | 15 |
| Channel control | k | 33 | 16 |
| Channel control | m | 32 | 17 |
| Channel control | n | 11 | 18 |
| Channel control | p | 10 | 19 |
| Speaker | F | 4 | 22 |
| Retransmit Audio | W | 28 | 23 |

69. Interconnecting Circuits (Cont)

| Function | Rear Plug P1 Pin | Mounting Terminal Boards TB1801 and TB1802 Terminals | Remote Unit Terminal Board TB1701 Terminal |
|---|---|---|---|
| Af input return | | E1803 | 20 |
| Squelch light | h | 27 | 5 |
| Squelch on-off | G | 25 | 6 |
| 26.4 vdc (26.4 v to remote) | s | 35 | 12 |
| Ground | A | E1804 | 13 |
| Squelch sensitivity | f | 29 | 7 |

# CHAPTER 7

# FIELD MAINTENANCE INSTRUCTIONS

Note. This chapter contains information pertinent to field maintenance. The amount of repair that can be performed by units having field maintenance responsibility is limited only by the tools and test equipment available and the skill of the repairman.

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## Section I. GENERAL TROUBLE SHOOTING TECHNIQUES

Warning. When servicing the radio set, be extremely careful of the exposed high voltage (300 volts).

### 70. Extent of Instructions

Trouble shooting at a field maintenance level includes all the techniques outlined for organizational maintenance (chapter 4) and any other techniques required to isolate a defective part. The field maintenance instructions are not complete in themselves but supplement the instructions in chapter 4. A systematic trouble shooting procedure begins with the operational and sectionalizing checks that can be performed at an organizational level (paragraphs 42 and 43), and ends with sectionalizing, localizing, and isolating techniques described in sections II and III of this chapter. Section II provides interunit sectionalizing procedures which must be performed at the field maintenance level; section III describes interunit localizing and isolating techniques that must be performed at a field maintenance level.

### 71. Trouble Shooting Techniques

a. General. To be effective, trouble shooting must be systematic. It is seldom possible to observe a symptom of trouble and diagnose the cause of the trouble immediately. Generally it is necessary to perform a sequence of operational checks, observations, and measurements before a fault is revealed. Using the proper sequence, the trouble is traced first to a unit, then to a portion of the unit, and finally to the defective part. This sequence of steps is commonly referred to as the sectionalization, localization, and isolation of trouble.

b. Sectionalization. The first aim when trouble shooting is to sectionalize the trouble to a unit of the radio set. Determine the defective unit through visual checks or operational procedures (paragraphs 42 and 43) and through additional measurements and tests (paragraphs 73 through 80) as necessary.

c. Localization. After the defective unit is determined, make additional checks and measurements to localize the trouble to a portion of the unit. As in the case of sectionalization, use inspection, short circuit checks, and operational techniques first and use the specialized testing procedures of sections II and III when necessary.

Caution: Do not apply power to a set or unit unless the operational symptoms are known and are of such a nature as to eliminate the possibility of further damage when power is applied. If the symptom is not known or indicates the possible existence of short circuits, make short circuit checks (paragraph 75) before applying power.

d. Isolation. After trouble has been localized to a portion of a unit, for example, to a stage or a group of functionally related circuits, use visual inspection, voltage measurements, and resistance measurements to determine the defective part. Data and procedures for isolating defective parts are detailed in sections II and III of this chapter.

72. Test Equipment Required

The test equipment required for trouble shooting Radio Set AN/VRC-24 is listed below.

| Nomenclature | Common Name |
|---|---|
| Vhf Signal Generator Model 608D (Hewlett-Packard Co.) | Signal Generator |
| Signal Generator TS-588/U | Signal Generator |
| Audio Oscillator TS-382A/U | Audio Oscillator |
| Test Set, Electron Tube TV-7/U | Tube Tester |
| Multimeter TS-352/U | Multimeter |
| Electronic Multimeter TS-505/U | VTVM |
| Electronic Multimeter ME-6B/U | AC Voltmeter |
| Oscilloscope Type 304A (Allen B. DuMont Laboratories, Inc.) | Test Scope |
| Termaline Wattmeter Model 612 (Bird Electronic Corp.) | RF Wattmeter |

## Section II. INTERUNIT TROUBLE SHOOTING

73. Defective Remote Operation

Faulty remote operation, items 11, 14, 15, 23, 25, 26, and 27 of the equipment performance checklist (par. 41) may be caused by defective interconnecting cables or a defective remote control unit. If the operational checks (pars. 42 and 43) fail to isolate the defective unit, perform the following checks. When the defective unit is determined, localize the trouble as outlined in section III of this chapter.

Note. The following checks are to be performed with the equipment de-energized.

a. If trouble is encountered in the af or radio or interphone control circuits, check the continuity between J1801, J702 or J703 and J1701 or J1702. Set the volume controls on both the receiver-transmitter and the remote control unit to the maximum clockwise stop. Lock the RADIO-INT-RADIO switch on the remote control unit in the RADIO position. There should be zero or very low resistance between the following points.

J702-B and J1701-B

J702-C and J1701-C

J702-E and J1701-E

J702-F and J1701-F

J702-H and J1701-H

J1801-d and J1701-J

J702-K and J1701-K

J702-A and J1701-A

b. If high or infinite resistance is encountered in any of the above checks, remove the receiver-transmitter from the mounting and check for zero or low resistance between the following points.

J1801-J and J1701-A

J1801-A and J1701-B

J1801-a and J1701-C

J1801-A and J1701-E

J1804-e and J1701-F

J1801-A and J1701-H

J1801-d and J1701-J

J1801-g and J1701-K

Normal readings indicate a defective receiver-transmitter. Abnormal readings indicate defective interconnecting cable or defective remote control unit.

c. If abnormal readings are obtained during the above check, remove the rear plate from the remote control unit and check the continuity between the following points.

J1801-J and TB1701-3

J1801-A and TB1701-13 and 20

J1801-a and TB1701-2

J1801-e and TB1701-10

J1801-d and TB1701-9

J1801-g and TB1701-1

Normal readings indicate a defective remote control unit. Abnormal readings indicate a defective interconnecting cable or a defective mounting.

d. If the channel selection, squelch, speaker, retransmit, or ON/OFF control circuits fail to operate properly, remove the receiver-transmitter from the mounting and remove the rear plate from the remote control unit. Check for zero or low resistance between the following points.

J1801-r and TB1701-11

J1801-E and TB1701-21

J1801-j and TB1501-15

J1801-k and TB1701-16

J1801-m and TB1701-17

J1801-n and TB1701-18

J1801-p and TB1701-19

J1801-F and TB1701-22

J1801-W and TB1701-23

J1801-h and TB1701-5

J1801-G and TB1701-6

J1801-f and TB1701-7

J1801-s and TB1701-12

Normal readings indicate a defective receiver-transmitter. Abnormal readings indicate a defective mounting or interconnecting cable.

74. Defective Operation at the Local Position

If the operational checks (pars. 42 and 43) fail to isolate the trouble, remove the receiver-transmitter from the mounting and measure the voltage at J1801-K. The voltage at J1801-K when the battery charging generator is not running should be +24 vdc. Absence of the 24 volt potential indicates a defective power cable, a defective mounting, or a defective vehicular electrical system. Normal voltage at J1801-K indicates a defective receiver-transmitter. If there is no voltage at J1801-K or the voltage is low disconnect the power cable from the vehicular electrical system and check the continuity between the positive terminal on the power cable and J1801-K and between the ground or negative terminal on the power cable and J1801-A. Normal indication is zero or very low resistance. Next check the resistance between J1801-K and ground (J1801-A). Normal indication is infinite resistance. Normal readings indicate a defect in the vehicular electrical system. Abnormal readings indicate a defective power cable or mounting.

## Section III. TROUBLE SHOOTING RECEIVER-TRANSMITTER RT-323(XC-2)/VRC-24

Caution: Do not attempt removal or replacement of parts before reading the instructions in section IV.

75. Checking Filament and B+ Circuits for Shorts

a. When to Check. Additional damage will be caused by applying power to a receiver-transmitter in which short circuits exist. When any of the following conditions apply, check first for short circuits, and clear the troubles that are found before applying power.

(1) When the receiver-transmitter is being serviced apart from the other units of Radio Set AN/VRC-24 and the nature of the abnormal symptoms is not known.

(2) When abnormal symptoms reported from operational tests indicate possible power supply troubles (item 13 of the equipment performance checklist, par. 41).

(3) When interunit sectionalizing procedures (pars. 73 and 74) have indicated possible power supply trouble.

b. Conditions for Tests. To prepare for the short-circuit tests, perform the following steps:

(1) Remove the receiver-transmitter from the mounting.

(2) Remove the receiver-transmitter from its case (par. 82).

(3) Remove all dial lamps.

(4) Remove P1001 from J10, P401 from J4, and P101 from J1.

(5) Set METER switch S704 to PWR.

(6) Replace all blown fuses.

c. Localizing Procedure for +26.4 vdc Short-Circuits. Check for high or infinite resistance between the points indicated in the following chart and ground. If zero or low resistance is encountered, perform the localizing procedures indicated.

| Point of Measurement | Localizing Procedure |
|---|---|
| J1-J | Check wiring to jacks J1 and J4. |
| F704 | Check front panel wiring and wiring to P1, J15, P2, J7, and K3. |
| J10-H | Check wiring to jacks J1, J4, J6, J7, J8, J10, J12, J15, P2, P1, and subunits connected to these jacks. |
| J1-D | Disconnect plugs indicated below one at a time. If the short circuit disappears, check the indicated subunit. If the short-circuit remains or cannot be located in the subunit reconnect the plug and proceed to the next step. |

| Remove Plug | Check Subunit |
|---|---|
| P201 | Uhf injection system |
| P501 | 3d if. amplifier |
| P801 | Audio amplifier and modulator |
| P301 | 1st if. amplifier |

If the above checks fail to locate the trouble check the main frame wiring.

d. Localizing Procedure for +125 v Short-Circuit. Reconnect P101 and P401. Connect the ohmmeter between J10-K and ground. If the resistance is less than 10,000 ohms, perform the procedures listed in the following table. If the short-circuit remains after performing one step, reconnect plugs and proceed to the next step. If the short-circuit disappears, check the circuit indicated. If the circuit check fails to reveal any fault, proceed to the next step.

| Step | | Probable location of trouble |
|---|---|---|
| No. | Procedure | |
| 1 | Remove relay and filter unit | +125 filter or relay wiring |
| 2 | Remove P101 from J1 | Rf and power amplifier subassembly |
| 3 | Remove P201 from J2 | Uhf injection system |
| 4 | Remove P301 from J3 | 20.0 to 29.9 mc if. amplifier subassembly |
| 5 | Remove P401 from J4 | 3.0 to 3.9 mc if. amplifier subassembly |

d. Localizing Procedure for +125 v Short-Circuit (Cont).

| Step | | Probable location of trouble |
|---|---|---|
| No. | Procedure | |
| 6 | Remove P501 from J5 | 500 kc if. amplifier subassembly |
| 7 | Remove P801 from J8 | Audio amplifier and modulator |
| 8 | | Work relay K1 or P2 |
| 9 | | Metering circuit on the front panel |
| 10 | | Main cable especially jacks J1, J2, J3, J4, J5, J6, J7, J8, J10, and J15 |

e. Localizing Procedure for +300 v Short-Circuit. Measure at least 26,000 ohms between J10-F and ground. If the resistance at this point is less than 26,000 ohms perform the following checks. If the resistance is normal, skip to step (4).

(1) Remove the relay and filter unit. If the low resistance disappears, check the +300 v filter.

(2) Remove P801 from J8. If the low resistance disappears, check the audio amplifier and modulator unit. If the low resistance remains or if no fault is found in the audio amplifier and modulator reconnect P801.

(3) If the above checks fail to locate the trouble, check J15, P2, P1, metering circuit, squelch disabling circuit, relays K1 and K2, and the main frame wiring.

(4) Measure infinite or very high resistance from J6-B to ground.

(5) If abnormal indications are obtained for step (4) above, remove P101 from J1. If the low resistance disappears, check the V105 plate circuit.

(6) Remove P801 from J8. If the low resistance disappears, check the audio amplifier and modulator. If the trouble is not in the audio amplifier and modulator or if the low resistance remains with P801 disconnected, perform the checks of step (3) above.

f. Localizing Procedure for -30 v Short-Circuits. Measure the resistance between J10-M and ground. If the resistance is less than 180 ohms, check for short-circuits in the relay and filter unit, in the audio amplifier and modulator, in the microphone power circuit, or in the squelch sensitivity control circuit.

g. Procedure for Checking the Dynamotor for Short-Circuits. If possibility of short-circuits exists and the previous tests have failed to locate the trouble, measure the resistance between the points listed in the following table and ground. If the resistance is less than the value indicated, check the circuit specified. If the resistance is equal to or greater than the value indicated proceed to the next step.

| Point of Measurement | Approximate Resistance | Probable location of fault |
|---|---|---|
| P1001-L, J, or H | 0.4 ohms | C1006 or dynamotor primary |
| P1001-F | 65 ohms | FL1003 or dynamotor 300 v section |
| P1001-K | Infinite | FL1002 or dynamotor 170 v section |
| P1001-M | Infinite | FL1001 or dynamotor 170 v section |

76. Test Setup.

Bench tests of Receiver-Transmitter RT-323(XC-2)/VRC-24 require connections to a power source and to various test equipments. The power source must be connected to the receiver-transmitter for all hot-servicing procedures; the test equipment connections vary from test to test. Remove the receiver-transmitter from its case (par. 82) and make a test setup as outlined below.

a. Power Supply Connections.

(1) A power supply capable of supplying +26.4 vdc at 20 A is required for bench testing the receiver-transmitter.

(2) Connect the positive terminal of the power supply to P1-K and s and connect the negative terminal to P1-A (ground).

b. Test Equipment. Connect the test equipment (signal generators, meters, etc) as specified for the particular test (pars. 77 through 80 following). Connect a 600 ohm 2 watt resistor between P1-F and ground to load the speaker output. Connect the 50 ohm Termaline Wattmeter to the ANT jack J701 whenever the set is to be operated on transmit.

c. Control Settings. Set receiver-transmitter controls as follows:

VOLUME max

SQUELCH OFF

77. Localizing Trouble

a. General. The following chart outlines procedures for localizing trouble to the subunits of Receiver-Transmitter RT-323(XC-2)/VRC-24, and for localizing trouble to a stage within the subunits. Depending on the nature of the operational symptoms, one or more of the localizing procedures will be necessary. When use of the procedures results in localization of trouble to a particular stage, use the techniques outlined in paragraph 79 to isolate the trouble to a particular part.

b. Use of Chart. The trouble shooting chart is designed to supplement the operational checks detailed in the equipment performance checklist (par. 41) and the interunit sectionalization checks described in section II of this chapter. If previous operational checks have resulted in reference to a particular step of this chart, go directly to the reference step. If no operational symptoms are known, begin at step 1 of the chart and proceed as directed.

Caution: If operational symptoms are not known, or they indicate the possibility of short-circuits within the receiver-transmitter, make the short-circuit checks described in paragraph 75 before applying power to the unit.

c. Conditions for Tests. All checks outlined in the chart are to be conducted with the receiver-transmitter connected to a power source as described in paragraph 76 and with the 600 ohm resistor connected between P1-F and ground. Signal generators and meters are to be connected to various points in the receiver-transmitter circuits as directed throughout the chart.

d. Trouble Shooting Chart

| Step No. | Step Procedure | Localizing Trouble Shooting Chart: When to Perform | What to Expect | What to Do Next: When Results Are Normal | What to Do Next: When Results Are Abnormal |
|---|---|---|---|---|---|
| 1 | Make an operational test (repeat items 3 thru 6, items 10 thru 13, items 15 thru 22 and items 24, 25, and 28). | When the operational symptoms have not been determined. After the possibility of short circuits (par. 75) has been eliminated. | The normal indications listed in equipment performance checklist (par. 41). | | The corrective procedure referenced in the equipment performance checklist (par. 41). |
| 2 | Use Electronic multimeter TS-505/U to measure the power supply voltages at fuses F701, F702, F703, and F704. | After the possibility of short circuits has been eliminated (par. 75). When abnormal indications were obtained for items 11 or 13 of the equipment performance checklist (par. 41). | At F701 measure +330 vdc step 3. At F702 measure +140 vdc. At F703 and F704 measure +26.4 vdc. | | Isolate trouble in the circuits associated with the power supply output being checked. |
| 3 | Use Electronic Multimeter TS-505/U to measure the voltage at J508. | When there is no output from the receiver-transmitter. | Between -0.3 and -1.0 vdc. Normal voltage indicates that the rf, if. and detector circuits are functioning normally. | Step 12. | If the voltage at J508 is approximately +7 vdc go to step 4. If the voltage at J508 is appreciably less than +7 vdc (approx. +3 vdc or less) realign the set (section V). |
| 4 | Use Electronic Multimeter TS-505/U to measure the voltage at J404. | When abnormal results are obtained for step 3. | Between -2 and -4.5 vdc. Normal voltage indicates that the 3.0- to 3.9-mc oscillator is functioning normally. | Step 5. | Use voltage and resistance measurements to determine the defective component. |
| 5 | Use Electronic Multimeter TS-505/U to measure the voltage at J305. | When normal results are obtained for step 4. | Between -0.19 and -2.5 vdc. Normal voltage indicates that the 17 to 26 mc oscillator | Step 6 | Check tuning of Z307 with tuning wand. If no improvement is obtained, use voltage |

d. Trouble Shooting Chart (cont).

| Step No. | Step Procedure | Localizing Trouble Shooting Chart: When to Perform | What to Expect | What to Do Next: When Results Are Normal | What to Do Next: When Results Are Abnormal |
|---|---|---|---|---|---|
| 5 cont | | | is functioning normally. | | and resistance measurements to determine the defective component. |
| 6 | Use Electronic Multimeter TS-505/U to measure the voltage at J106. | When normal results are obtained for step 5. | Between -1.5 and -2.0 vdc. Normal voltage indicates that the uhf injection system is functioning normally. | Step 9. | Step 7. |
| 7 | Use Electronic Multimeter TS-505/U to measure the voltage at J201. | When abnormal results are obtained for step 6. | -1 vdc or more. | Step 8. | Check tuning of coils L201 thru L218 and Z201. If no improvement is obtained, make voltage and resistance measurements to locate the defective component. |
| 8 | Realign the frequency multiplier amplifier (par. 91). | When normal results are obtained for step 7. | -1 vdc or more at J106. | Step 9. | The defective stage will be indicated during alignment. Use voltage and resistance measurements to locate defective component. |
| 9 | Connect Signal Generator TS-588/U to J402 and inject a 500 kc signal at a level of 100 uv. | When normal results are obtained for step 8. | -5.0 vdc at J508. Normal voltage indicates that the 500 kc if. filter and the 500 kc if. amplifier are functioning normally. | | If voltage is low or positive, make stage gain measurements to determine defective stage. |
| 10 | Connect Vhf Signal Generator Model 608D to J301 and inject a 29.9 mc signal at a level of 50 uv (receiver-transmitter must | When normal results are obtained for step 9. | -5.0 vdc at J508. Normal voltage indicates that the 20.0 to 29.9 mc if. and the 3.0 to 3.9 mc if. amplifiers are functioning normally. | | Make stage gain measurements to determine the defective stage. |

d. Trouble Shooting Chart (cont).

| Step No. | Step Procedure | When to Perform | Localizing Trouble Shooting Chart: What to Expect | What to Do Next: When Results Are Normal | What to Do Next: When Results Are Abnormal |
|---|---|---|---|---|---|
| 10 cont | be tuned to XX9.9 mc). Connect a 1000 uuf capacitor between the hot lead from the signal generator and J301. | | | | |
| 11 | Connect Vhf Signal Generator Model 608D to ANT. jack J701. Connect the 6 db pad between the receiver-transmitter and the signal generator. Inject a 399.9 mc signal at J701 at a level of 20 uv. Tune the receiver-transmitter to 399.9 mc. | When normal results are obtained for step 10. | -5.0 vdc or more at J508. Normal voltage indicates that the rf and if. circuits are functioning normally on receive. | Step 12. | Make stage gain measurements to determine the defective stage in the rf and power amplifier |
| 12 | Connect the output of Audio Oscillator TS-382A/U to J506, inject a 1000 cps signal at a level of 0.5 v. | When normal results are obtained for steps 3 or 11. | 20 to 25 vac across the 600 ohm resistor connected to the speaker line as measured with Electronic Multimeter ME-6B/U. | Make voltage and resistance measurements on the audio amplifier V504 circuits and the series noise limiter CR503 circuit to determine defective component. | Step 13. |
| 13 | Connect the output of Audio Oscillator TS-382A/U to J802. Use a .05 uf capacitor in series with the hot lead. Inject a 1000 cps signal at a level of .25 vac. | When abnormal results are obtained for step 12. | 20 to 25 vac across speaker output load (600 ohm resistor). Normal voltage indicates that V804 and circuits following it are functioning normally. | Inject the signal at J506 and using headsets trace it to J802 to determine the defective component. | Make stage gain measurements to determine the defective stage. |

d. Trouble Shooting Chart (Cont).

| Step No. | Step Procedure | Localizing Trouble Shooting Chart: When to Perform | What to Expect | What to Do Next: When Results Are Normal | What to Do Next: When Results Are Abnormal |
|---|---|---|---|---|---|
| 14 | Use Electronic Multimeter TS-505/U to measure the voltage at J104 on transmit. | When abnormal results are obtained for item 19 in the equipment performance checklist (par. 41). | -1 vdc or more. Normal voltage indicates normal uhf injection to the second transmit mixer V101. | Step 15. | Make voltage and resistance measurements to determine the defective component (the uhf injection system was checked on receive). |
| 15 | Use Electronic Multimeter TS-505/U to measure the rf voltage at J103 on transmit. | When normal results are obtained for step 14. | 5 volts rf or more. | Make voltage and resistance measments on the 2d transmit mixer V101 circuit, on the driver V104 circuit and on the power amplifier V105 circuit to determine the defective component. | Make voltage and resistance measurements on the 1st transmit mixer V304 circuit, if voltage and resistance are normal, perform step 16. |
| 16 | Use Electronic Multimeter TS-505/U to measure the voltage at J404 on transmit. | When abnormal results are obtained for step 15. | -6 to -9 vdc. | Step 17. | Check K401. |
| 17 | Insert tuning wand into Z307 to disable the 17 to 26 mc oscillator, use Electronic Multimeter TS-505/U to measure the rf voltage at J304 on transmit. | When normal results are obtained for step 16. | 0.1 volts rf or more. | | Check circuits between J404 and J304. |
| 18 | Use Multimeter TS-505/U to measure the voltage at J702-C on transmit with microphone connected to J703-C. | When transmitter rf output is normal, but no modulation is possible. | -4.2 vdc approximately. | Check V803 circuit by making voltage and resistance measurements. | Check relay K802 and continuity between K802-20 and J702-C on standby. Check continuity between K802-1 and C809. |

d. Trouble Shooting Chart (Cont).

| Step No. | Step Procedure | Localizing Trouble Shooting Chart: When to Perform | What to Expect | What to Do Next: When Results Are Normal | What to Do Next: When Results Are Abnormal |
|---|---|---|---|---|---|
| 19 | Use Multimeter TS-505/U to measure the voltage at J702-K on interphone with the microphone connected to J703-K. (Ground J1701-J on the remote control to key the interphone circuit.) | When no output is obtained on interphone. | -4.2 vdc approximately. | | Check relay K602 and continuity between K602-6 and J702-K and between K602-12 and C809. |

78. Localizing Trouble to Stage by Stage-Gain Measurements.

Use the techniques outlined below as an aid in localizing trouble to a stage.

a. General Instructions: Connect the receiver-transmitter to a power source (par. 76), set controls as indicated in the following chart, and ground test jacks J507 and J105. When making rf measurements on receive, connect Electronic Multimeter TS-505/U to J508 and adjust the signal generator to obtain -10 volts dc at J508. The output of the signal generator should agree in frequency and level with the frequencies and levels given in subparagraph b. When making audio measurements, connect a 600 ohm resistive load between J702-L and ground, inject 0.062 volts, 1000 cps, at V504 pin 1 and measure the voltages at the test points listed.

| Control | Setting |
|---|---|
| SQUELCH | OFF |
| VOLUME | MAXIMUM |

b. Receive Stage Gain Measurement Chart.

| Signal Frequency | Signal Level Microvolts | Injection or Test Point | Function |
|---|---|---|---|
| 349.5 mc | 1.4 | Ant. | |
| 29.5 mc | 10.0 | V104 cathode | 1st receive mixer |
| 29.5 mc | 14.0 | J301 | If. amplifier V301 grid |
| 29.5 mc | 172.0 | J302 | If. amplifier V302 grid |
| 29.5 mc | 390.0 | J303 | 2d receive mixer V303 grid |
| 3.5 mc | 310.0 | J303 | 2d receive mixer V303 grid |

b. Receive Stage Gain Measurement Chart.

| Signal Frequency | Signal Level Microvolts | Injection or Test Points | Function |
|---|---|---|---|
| 3.5 mc | 290.0 | J402 | 3d receive mixer V401 cathode |
| .5 mc | 120.0 to 150.0 | J402 | 3d receive mixer V401 cathode |
| 0.5 mc | 170.0 | J503 | If. amplifier V501 grid |
| 0.5 mc | 10K | V502 grid | If. amplifier |
| 0.5 mc | 600K | J505 | If. amplifier V503 grid |
| 1 kc | 0.062 | V504 grid | 1st receive audio amplifier |
| 1 kc | 0.40 | J802 | 2d receive audio amplifier V804 grid |
| 1 kc | 1.40 | V805 grid | Audio output amplifier |
| 1 kc | 24.5 | J702-L | Speaker output |

c. Transmit Voltage Chart. The voltages listed in the following chart were measured with a vacuum tube voltmeter, on transmit, with no modulation and with the set tuned to 349.5 mc.

| Test Point | Tube and Function | Normal Indication |
|---|---|---|
| J404 | V401, Oscillator and buffer | -9.9 vdc |
| J305 | V305, second oscillator | -1.15 vdc |
| J302 | V302, if. amplifier | -2.55 vdc |
| J303 | V303, second receive mixer | -3.1 vdc |
| J103 | V101, second transmit mixer | 12 volts rf |
| J104 | V101, second transmit mixer | -2.6 vdc |
| J105 | V103, second rf amplifier | -1.8 vdc |
| J106 | V104, transmit driver | -4.4 vdc |
| Power amplifier, grid using M701 | V105, Power amplifier | Center scale (red area) |

79. Isolating Trouble Within a Stage

When trouble has been localized to a stage, either through operational checks (chapter 4) or stage-gain measurements (par. 78), use the following techniques to isolate the defective part.

a. Test the tube involved, either in Tube Tester TV-7/U or by substituting a similar type tube which is known to be operating normally.

b. Take voltage and resistance measurements at the tube sockets and other points related to the stage in question.

80. Voltage and Resistance Measurements

All voltage measurements were taken with a vacuum tube voltmeter with the set operating on transmit with no modulation or on receive with no signal. All resistance measurements were taken with the subunit power plug disconnected and the tubes removed from their sockets.

a. Voltage and Resistance Chart Rf and Power Amplifier.

| Tube | Pin No. | Voltage Receive | Voltage Transmit | Resistance Ohms |
|---|---|---|---|---|
| V101 | 1, 5, 6, | .015 db | 4.65 dc | 66K |
| | 2 | 0 | .05 dc | 10.5 |
| | 3 | 6.1 dc | 6.0 dc | 37 |
| | 4 | 0 | 0 | 0 |
| | 7 | 0 | 115 dc | Inf |
| V102 | 1, 5, 6 | 0 | 0 | Inf |
| | 2 | 0.6 dc | 0.6 dc | 47 |
| | 3 | 6.1 dc | 6.0 dc | 37 |
| | 4 | 0 | 0 | 0 |
| | 7 | 125 dc | 105 dc | Inf |
| V103 | 1, 5, 6 | 0 | -1.3 dc | Inf |
| | 2 | 1.8 dc | 3.4 dc | 110 |
| | 3 | 6.1 dc | 6.0 dc | 37 |
| | 4 | 0 | 0 | 0 |
| | 7 | 132 dc | 128 dc | Inf |
| | Heater | 6.18 dc | 6.0 dc | 37 |
| V104 | Heater | 0 | 0 | 0 |
| | Cathode | 0.3 dc | 3.9 dc | 102 |
| | Grid | 1.8 dc | 5.0 dc | 100K |
| | Plate | 49 dc | 290 dc | Inf |
| V105 | 1 | 0 | 128 dc | Inf |
| | 2, 4, 6, 8 | 0 | 0 | 0 |
| | 3 | 26.3 dc | 25.5 dc | Inf |
| | 5 | 0 | 128 dc | Inf |
| | 7 | 0 | 0 | 0 |
| | Plate | 0 | 295 dc | Inf |

b. Voltage and Resistance Chart for UHF Injection System.

| Tube | Pin No. | Voltage Receive | Voltage Transmit | Resistance Ohms |
|---|---|---|---|---|
| V201 | 1 | 6.3 dc | 6.3 dc | Inf. |
| | 2 | +1.2 dc | +1.2 dc | 225 |
| | 3 | 0 | 0 | 22 |
| | 4 | +115 dc | +115 dc | Inf |
| | 5 | 0 | 0 | 0 |

b. Voltage and Resistance Chart for UHF Injection System (cont).

| Tube | Pin No. | Voltage Receive | Voltage Transmit | Resistance Ohms |
|---|---|---|---|---|
| V201 | 6 | +127 dc | +127 dc | Inf |
| (cont.) | 7 | | | 10.7K |
| | 8 | +1.35 dc | +1.35 dc | 260 |
| | 9 | 12.5 dc | 12.5 dc | Inf |
| V202 | 1 | +1.75 dc | +1.75 dc | 150K |
| | 2 | 0 | 0 | 0 |
| | 3 | 12.5 dc | 12.5 dc | Inf |
| | 4 | 6.3 dc | 6.3 dc | Inf |
| | 5 | +75 dc | +75 dc | Inf |
| | 6 | +40 dc | +40 dc | Inf |
| | 7 | 0 | 0 | 0 |
| V203 | 1 | 0 | 0 | 0 |
| | 2 | +0.3 dc | +0.3 dc | 105 |
| | 3 | 12.5 dc | 12.5 dc | Inf |
| | 4 | 6.3 dc | 6.3 dc | Inf |
| | 5 | 0 | 0 | 0 |
| | 6 | 0 | 0 | 0 |
| | 7 | +56 dc | +56 dc | Inf |
| V204 | 1 | 0 | 0 | 0 |
| | 2 | +0.75 dc | +0.75 dc | 96 |
| | 3 | 12.5 dc | 12.5 dc | Inf |
| | 4 | 6.3 dc | 6.3 dc | Inf |
| | 5 | 0 | 0 | 0 |
| | 6 | 0 | 0 | 0 |
| | 7 | +102 dc | +103 dc | Inf |
| V205 | 1 | 0 | 0 | 0 |
| | 2 | +1.45 dc | +1.4 dc | 100 |
| | 3 | 12.5 dc | 12.5 dc | Inf |
| | 4 | 6.3 dc | 6.3 dc | Inf |
| | 5 | 0 | 0 | 0 |
| | 6 | 0 | 0 | 0 |
| | 7 | +107 dc | +107 dc | Inf |

c. Voltage and Resistance Chart for 20.0 to 29.9 mc If. Amplifier.

| Tube | Pin No. | Voltage Receive | Voltage Transmit | Resistance Ohms |
|---|---|---|---|---|
| V301 | 1 | 0 | 0 | Inf |
| | 2 | +0.85 dc | +1.48 dc | 235 |
| | 3 | 12.2 dc | 12.2 dc | Inf |
| | 4 | +18 dc | 18 dc | Inf |
| | 5 | +117 dc | +117 dc | Inf |
| | 6 | +52 dc | +83 dc | Inf |
| | 7 | +0.85 dc | +1.5 dc | 234 |
| V302 | 1 | 0 | 0 | Inf |
| | 2 | +2.1 dc | +2.4 dc | 320 |
| | 3 | 12.2 dc | 12.2 dc | Inf |

c. Voltage and Resistance Chart for 20.0 to 29.9 mc If. Amplifier (Cont).

| Tube | Pin No. | Voltage Receive | Voltage Transmit | Resistance Ohms |
|---|---|---|---|---|
| V302 | 4 | 18.0 dc | 18.0 dc | Inf |
| (cont.) | 5 | +118 dc | +117 dc | Inf |
| | 6 | +118 dc | +117 dc | Inf |
| | 7 | +2.1 dc | +2.4 dc | Inf |
| V303 | 1 | -0.05 dc | -0.78 dc | 105K |
| | 2 | +0.68 dc | 0 | 1.5K |
| | 3 | 12.2 dc | 12.2 dc | Inf |
| | 4 | 18.0 dc | 18.0 dc | Inf |
| | 5 | +82 dc | 0 | 57K |
| | 6 | +26.6 dc | 0 | 390K |
| | 7 | +0.68 dc | 0 | 1.5K |
| V304 | 1 | -0.65 dc | 0 | 100K |
| | 2 | 0 | +94 dc | 1.1K |
| | 3 | 12.2 dc | 12.2 dc | Inf |
| | 4 | 18.0 dc | 18.0 dc | Inf |
| | 5 | 0 | 18.0 dc | Inf |
| | 6 | 0 | +43 dc | Inf |
| | 7 | 0 | +0.95 dc | 1.1K |
| V305 | 1 | 12.2 dc | 12.2 dc | Inf |
| | 2 | +1.22 dc | +1.22 dc | 120 |
| | 3 | -1.2 dc | -0.82 dc | 52K |
| | 4 | +120 dc | +120 dc | Inf |
| | 5 | 0 | 0 | 0 |
| | 6 | +120 dc | +120 dc | Inf |
| | 7 | 0 | 0 | 0 |
| | 8 | +1.22 dc | +1.22 dc | 120 |
| | 9 | 18.0 dc | 18.0 dc | Inf |

d. Voltage and Resistance Chart for 3.0 to 3.9 mc If. Amplifier.

| Tube | Pin No. | Voltage Receive | Voltage Transmit | Resistance Ohms |
|---|---|---|---|---|
| V401 | 1 | 0 | 0 | 0 |
| | 2 | +1.6 dc | +3 dc | 11.5K |
| | 3 | 0 | 0 | 108K |
| | 4 | +585 dc | +95 dc | 18K |
| | 5 | 0 | 0 | 0 |
| | 6 | +38.5 dc | +62 dc | 22K |
| | 7 | -4.4 dc | -7.7 dc | 10.5K |
| | 8 | +0.32 dc | +0.6 dc | 285 |
| | 9 | 6.1 dc | 6.1 dc | Inf |

e. Voltage and Resistance Chart for 500 kc If. Amplifier.

| Tube | Pin No. | Voltage Receive | Voltage Transmit | Resistance Ohms |
|---|---|---|---|---|
| V501 | 1 | 0 | 0.6 dc | Inf |
| | 2, 7 | 1.16 dc | 0 | 270 |
| | 3 | 12.0 dc | 12.0 dc | Inf |

e. Voltage and Resistance Chart for 500 kc If. Amplifier (Cont).

| Tube | Pin No. | Voltage Receive | Voltage Transmit | Resistance Ohms |
|---|---|---|---|---|
| V501 | 4 | 18.5 dc | 18.5 dc | Inf |
| (cont.) | 5 | 58 dc | 0 | Inf |
| | 6 | 61 dc | 0 | Inf |
| V502 | 1 | 0 | -0.6 dc | Inf |
| | 2, 7 | 1.12 dc | 0 | 270 |
| | 3 | 12.0 dc | 12.0 dc | Inf |
| | 4 | 18.5 dc | 18.5 dc | Inf |
| | 5 | 55 dc | 0 | Inf |
| | 6 | 63 dc | 0 | Inf |
| V503 | 1 | 0 | -0.44 dc | Inf |
| | 2, 7 | 1.33 dc | 0 | 270 |
| | 3 | 12.0 dc | 12.0 dc | Inf |
| | 4 | 18.5 dc | 18.5 dc | Inf |
| | 5 | 122 dc | 0 | Inf |
| | 6 | 77 dc | 0 | Inf |
| V504 | 1 | 0 | -0.57 dc | 220K |
| | 2, 7 | 4.7 dc | 0 | 220 |
| | 3 | 12.0 dc | 12.0 dc | Inf |
| | 4 | 18.5 dc | 18.5 dc | Inf |
| | 5 | 66 dc | 0 | Inf |
| | 6 | 93 dc | 0 | Inf |

f. Voltage and Resistance Chart for Audio Amplifier and Modulator.

| Tube | Pin No. | Voltage Receive | Voltage Transmit | Resistance Ohms |
|---|---|---|---|---|
| V801 | 1 | 18 dc | 17.5 dc | Inf |
| | 2 | 3.9 dc | 0 | 380 |
| | 3 | -1.22 dc | 0.72 dc | Inf |
| | 4 | 47.2 dc | 0 | 550K |
| | 5 | 0 | 0 | Inf |
| | 6 | 160 dc | 0 | 110K |
| | 7 | 47.2 dc | 0 | 550K |
| | 8 | 63.5 dc | 0 | 6K |
| | 9 | 11.8 dc | 11.4 dc | Inf |
| V802 | 1 | 18 dc | 17.8 dc | Inf |
| | 2 | 0 | 0 | Inf |
| | 3 | 0 | 0 | Inf |
| | 4 | 0 | 0 | Inf |
| | 5 | 0 | 0 | Inf |
| | 6 | 0 | 0 | 33K |
| | 7 | 0 | 0 | 33K |
| | 8 | 36 dc | 35 dc | 27K |
| | 9 | 12 dc | 11.5 dc | Inf |
| V803 | 1 | 0 | 0 | 320K |
| | 2 | 0.9 dc | 0.95 dc | 680K |
| | 3 | 11.8 dc | 11.5 dc | Inf |

f. Voltage and Resistance Chart for Audio Amplifier and Modulator (Cont.)

| Tube | Pin No. | Voltage Receive | Voltage Transmit | Resistance Ohms |
|---|---|---|---|---|
| V803 (cont.) | 4 | 18 dc | 17.6 dc | Inf |
| | 5 | 55 dc | 55 dc | 130K |
| | 6 | 47 dc | 46 dc | 75K |
| | 7 | 0.9 dc | 0.95 dc | 680 |
| V804 | 1 | 24.2 dc | 23.5 dc | Inf |
| | 2 | 6.5 dc | 7 dc | 750 |
| | 3 | 0 | 0 | 26K |
| | 4 | 258 dc | 290 dc | 2 meg |
| | 5 | 0 | 0 | Inf |
| | 6 | 258 dc | 290 dc | 2 meg |
| | 7 | 0 | 0 | 26K |
| | 8 | 6.5 dc | 7 dc | 750 |
| | 9 | 18.2 dc | 17.8 dc | Inf. |
| V805 | 1 | 280 dc | 300 dc | 2 meg |
| | 2 | 0 | 0 | Inf |
| | 3 | 0 | 0 | 0.4 |
| | 4 | 24.2 dc | 23.8 dc | Inf |
| | 5 | 18.8 dc | 18.2 dc | Inf |
| | 6 | 132 dc | 130 dc | 60K |
| | 7 | 0 | 0 | 0.4 |
| | 8, 9 | -6.6 dc | -5.2 dc | Inf |
| V806 | 1 | 280 dc | 302 dc | 2 meg |
| | 2 | 0 | 0 | Inf |
| | 3 | 0 | 0 | 0.4 |
| | 4 | 18.8 dc | 18.2 dc | Inf |
| | 5 | 24.2 dc | 23.8 dc | Inf |
| | 6 | 132 dc | 130 dc | 60K |
| | 7 | 0 | 0 | 0.4 |
| | 8, 9 | -6.6 dc | -5.1 dc | Inf |
| V807 | 1 | 280 dc | 300 dc | 2 meg |
| | 2 | 0 | 0 | Inf |
| | 3 | 0 | 0 | 0.4 |
| | 4 | 24.2 dc | 23.8 dc | Inf |
| | 5 | 18.8 dc | 18.2 dc | Inf |
| | 6 | 132 dc | 130 dc | 60K |
| | 7 | 0 | 0 | 0.4 |
| | 8, 9 | -6.6 dc | -5.2 dc | Inf |
| V808 | 1 | 280 dc | 302 dc | 2 meg |
| | 2 | 0 | 0 | Inf |
| | 3 | 0 | 0 | 0.4 |
| | 4 | 12.0 dc | 11.8 dc | Inf |
| | 5 | 6.7 dc | 6.6 dc | Inf |
| | 6 | 132 dc | 130 dc | 600K |
| | 7 | 0 | 0 | 0.4 |
| | 8, 9 | -6.6 dc | -5.1 dc | Inf |

## Section IV. REPAIRS

### 81. General Parts-Replacement Techniques

Most of the parts in Receiver-Transmitter RT-323(XC-2)/VRC-24 are readily accessible and easily replaceable. Careless replacement of parts, however, makes new faults inevitable. Observe the following precautions and techniques.

a. Before a part is unsoldered, note the position of the leads. If the part has a number of connections, tag each of the leads to it.

b. Be careful not to damage other leads by pulling or pushing them out of the way.

c. Do not allow drops of solder to fall into the set; they may cause short circuits.

d. Make well-soldered joints, since a poorly soldered joint causes faulty operation and is very difficult to find.

e. When a part is replaced in the rf or if. circuits, the new part must be placed in the exact position occupied by the old part. A part that has the same electrical value but different physical size may cause trouble in high-frequency circuits. Give particular attention to proper grounding. Use the same ground as in the original wiring. Failure to observe these precautions may result in decreased gain or in oscillation.

f. Do not disturb the adjustment of potentiometers R712, R805, R826, or R831 unless absolutely necessary. If repair operations necessitate changing the setting of these potentiometers, or if the setting is accidentally moved, readjust as directed in paragraphs 90 and 91.

### 82. Removal of Case from Receiver-Transmitter RT-323(XC-2)/VRC-24

To remove the case from Receiver-Transmitter RT-323(XC-2)/VRC-24, loosen the four slotted head captive screws in the corners of the front panel, place the unit panel down on a bench or table and lift off the case.

### 83. Removal of Subassemblies from Receiver-Transmitter RT-323(XC-2)/VRC-24

To remove subassemblies from Receiver-Transmitter RT-323(XC-2)/VRC-24, tune the set to 399.9 mc and perform the following procedures.

a. Removal of Rf and Power Amplifier.

(1) Disconnect plugs P101, P103, P202, P203, and P1302 from jacks J1, J205, J101, J102, and J109 respectively.

(2) Loosen the three painted head captive screws holding the unit to the main frame.

b. Removal of Uhf Injection System.

(1) Disconnect plugs P201 and P103 from jacks J2 and J205.

(2) Loosen the three painted head captive screws holding the unit to the main frame.

c. Removal of the 20.0 to 29.9 Mc If. Amplifier.

(1) Disconnect plugs P301, P302, P303, and P304 from jacks J3, J101, J102, and J401 respectively.

(2) Loosen the three painted head captive screws holding the unit to the main frame.

d. Removal of the 3.0 to 3.9 Mc If. Amplifier.

(1) Disconnect plugs P401, P304, and P901 from jacks J4, J401, and J403 respectively.

(2) Loosen the three painted head captive screws holding the unit to the main frame.

e. Removal of the 500 Kc If. Filter.

(1) Disconnect plugs P901 and P902 from jacks J403 and J502.

(2) Remove the two screws holding the top of the unit to the main frame.

f. Removal of the 500 Kc If. Amplifier.

(1) Disconnect plugs P501 and P902 from jacks J5 and J502.

(2) Loosen the four painted head captive screws holding the unit to the main frame.

g. Removal of the Audio Amplifier and Modulator.

(1) Disconnect plug P801 from J8.

(2) Loosen the four painted head captive screws holding the unit to the main frame.

h. Removal of Relay and Filter Unit.

(1) Loosen the two painted head captive screws holding the unit to the main frame.

(2) Grasp the bar captivated under the screws mentioned above and pull the unit straight back.

Note. Plugs P601 and P602 are rigidly mounted to the relay and filter unit and a strong pull is required to disconnect them from jacks J6 and J14.

i. Removal of Directional Coupler.

(1) Disconnect the wires from terminals E1301 and E1302 (fig. 92).

(2) Disconnect plugs P1301 and P1302 from J701 and J109.

j. Removal of Front Panel.

(1) Remove the frequency selector shroud.

(2) Disconnect plugs P703, and P1301 from jacks J11 and J701.

(3) Remove four mounting screws from the bottom of the unit.

(4) Pull the panel straight forward until P701 and P702 are disengaged from J7 and J1201.

k. Removal of Dynamotor.

(1) Disconnect P1001 from J10.

(2) Remove Audio Amplifier and Modulator.

(3) Loosen the four painted head screws in the dynamotor mounting and remove the dynamotor.

1. Removal of Frequency Selector.

(1) Remove front panel and audio amplifier and modulator.

(2) Disconnect plug P1201 from jack J12.

(3) Remove screws A (figs. 46 and 47) and move J7 bracket out of the way.

(4) Remove screws B (figs. 46 and 47) and screws A (fig. 48).

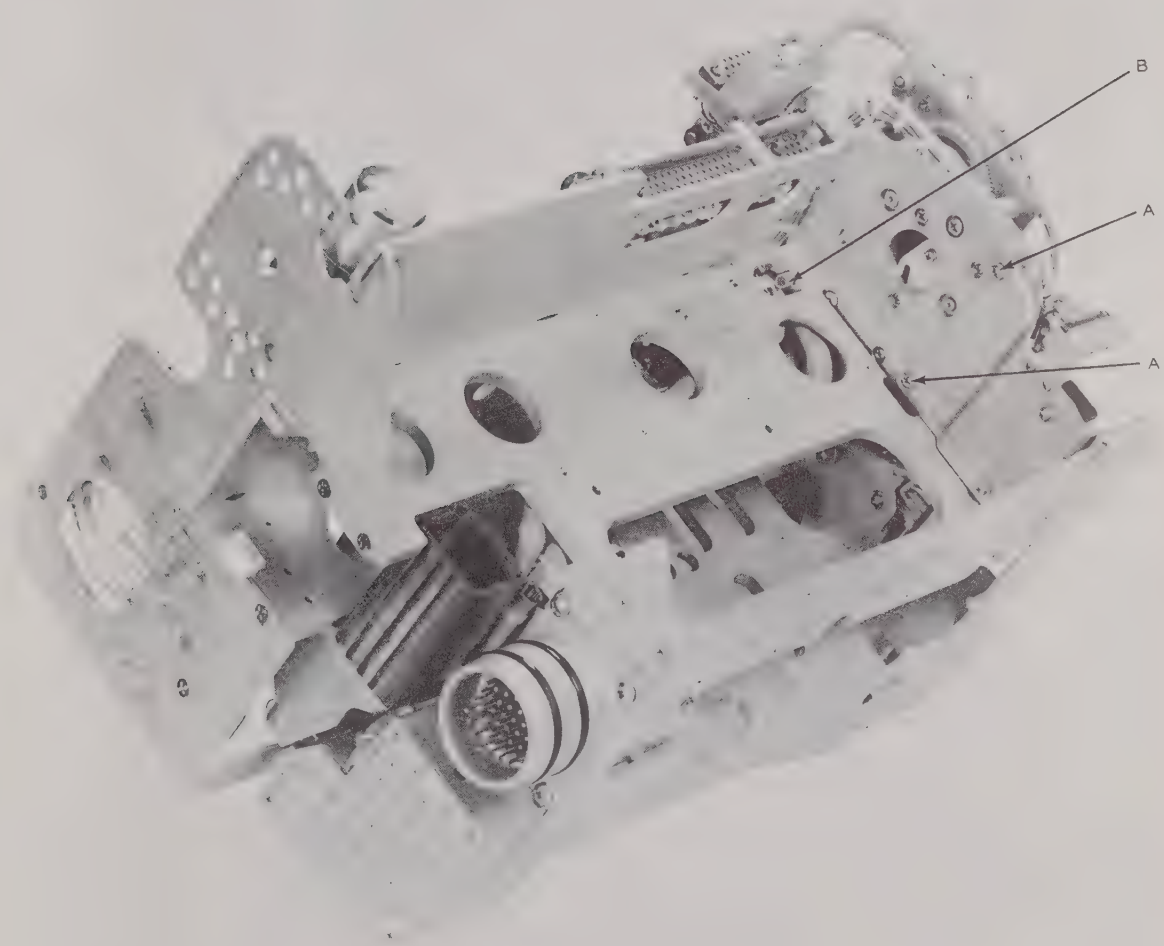



Figure 46. Main Frame and Frequency Selector, left rear view

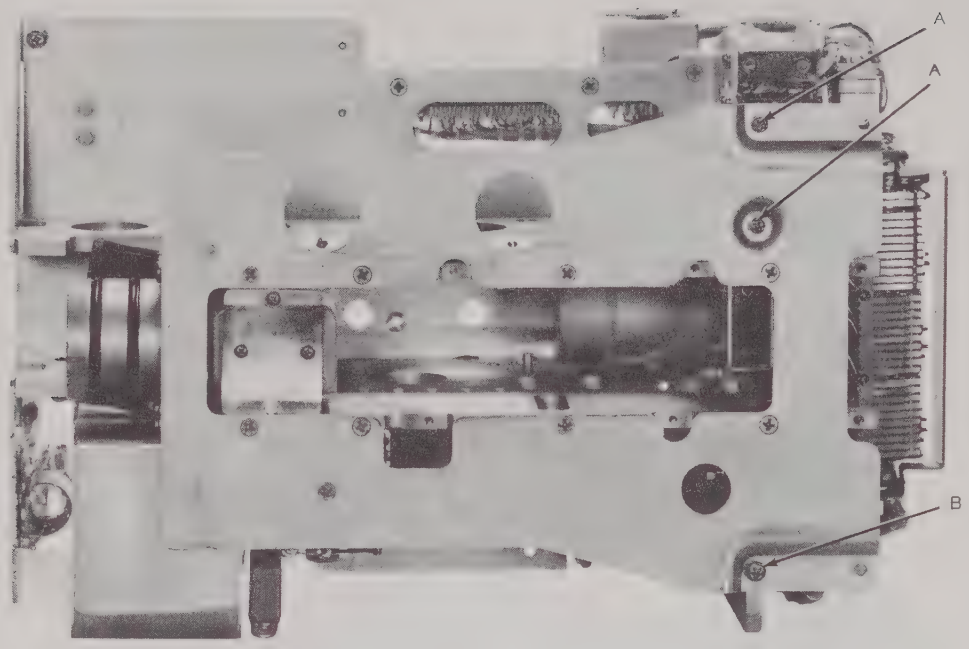



Figure 47. Main Frame and Frequency Selector, bottom view

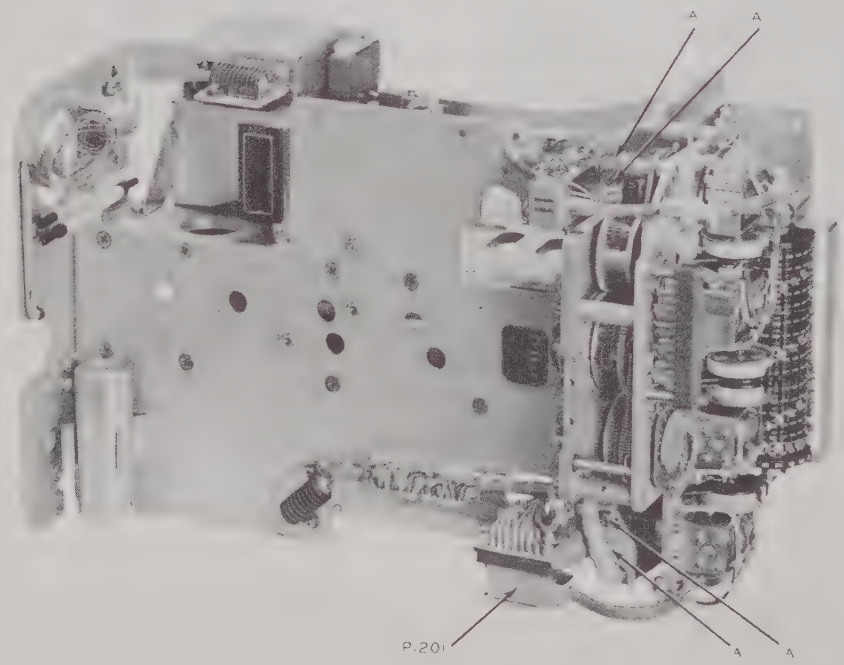



Figure 48. Main Frame and Frequency Selector, top view

84. Disassembly and Assembly of Uhf Injection System and Rf and Power Amplifier Subassembly

Special precautions must be observed when repairing the uhf injection system and the rf and power amplifier subassembly to avoid damaging components.

a. When removing the master oscillator from the frequency multiplier amplifier (FMA), index the gears so that mechanical synchronization will not be lost. Disconnect the junction marked Y in figure 49.

b. When soldering to trimmer capacitors C107, C115, C122, C127, C215, C221, C227, and C233, use a small iron. Excessive heat will damage the capacitors.

c. To remove the tube chassis from the FMA chassis, proceed as follows.

(1) Remove the top cover.

(2) With a small iron, carefully heat the junction of C214, C216, and Z202, point X in figure 49, and withdraw the C214 lead from the joint. Separate the tab on C216 from terminal lug on Z202.

Caution: Do not place any strain on the C216 lead or damage to the capacitor may result.

(3) Repeat step (2) for the remaining points marked X in figure 49.

(4) Disconnect the master oscillator output lead from point Y in figure 49.

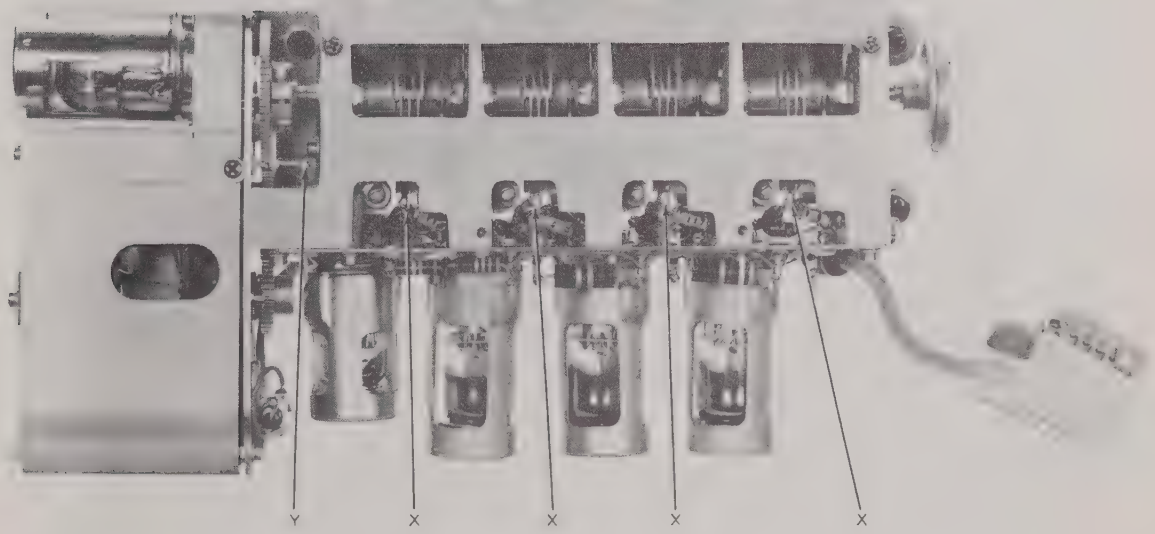



Figure 49. Uhf Injection System, top view (disassembly)

d. When replacing the tube chassis, reconnect points X as follows.

(1) Line up the holes in the C216 tab and the terminal lug on Z202. Insert the C214 lead and check that there is no strain on the C216 tab. Solder carefully, do not overheat.

(2) Repeat step (1) for the remaining points.

e. To remove the tube chassis from the rf and power amplifier chassis, proceed as follows.

(1) Disconnect the points marked X in figures 50 and 51, following the procedure outlined in subparagraph c. above.

(2) Remove ground terminals from under screws marked A in figure 50.

f. When replacing the tube chassis, proceed as follows.

(1) Place the tube chassis in position.

(2) Follow the procedure outlined in subparagraph d. above for reconnecting the points marked X in figures 50 and 51.

(3) Replace ground terminals under screws marked A in figure 50.

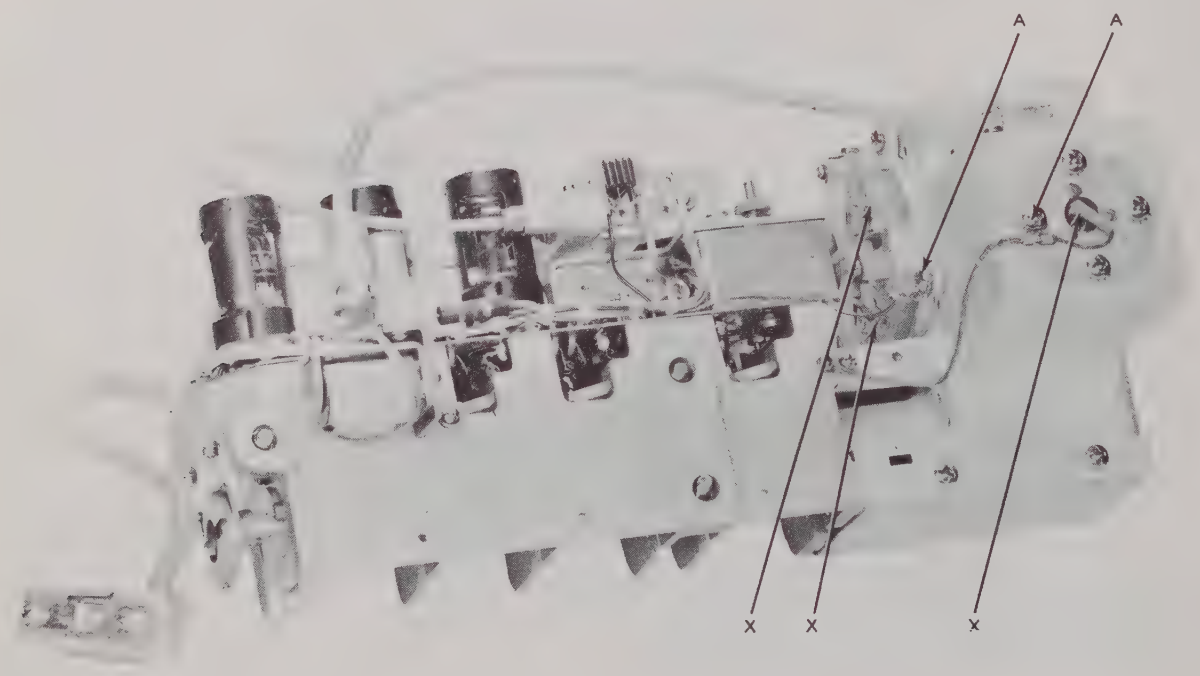



Figure 50. Rf and Power Amplifier, bottom view (disassembly)

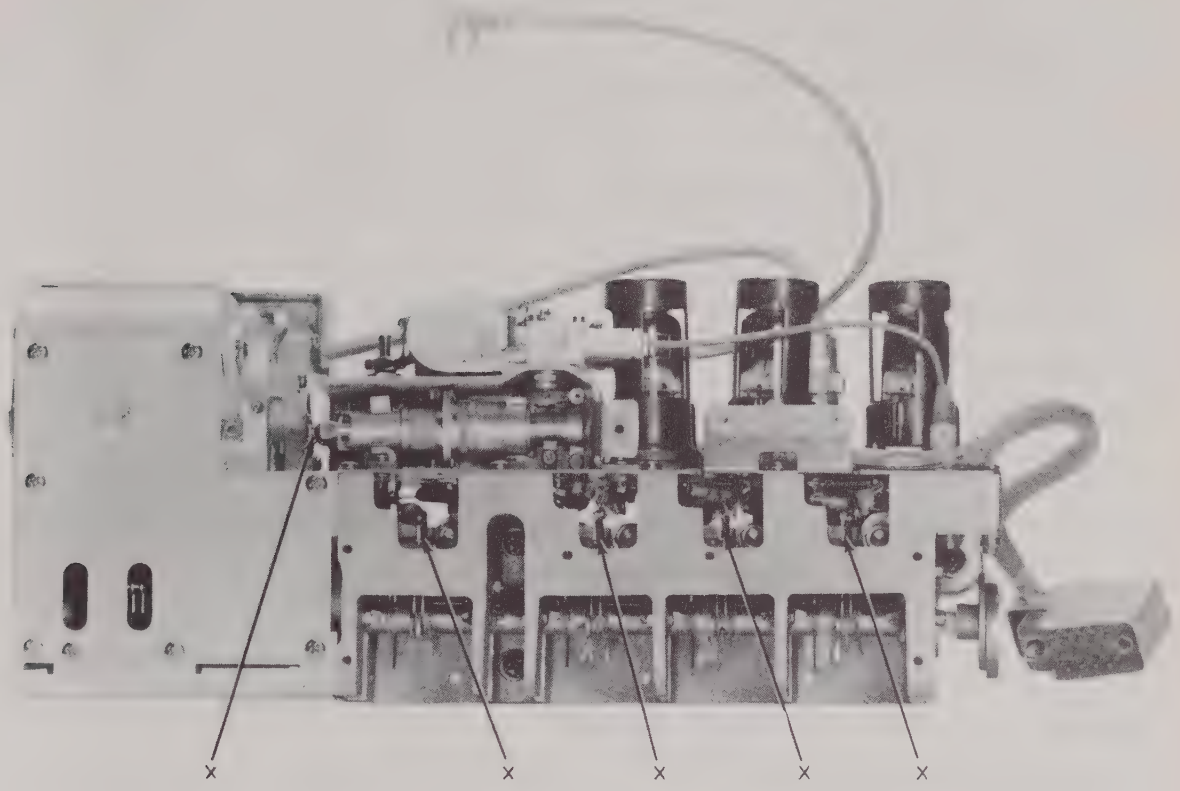


Figure 51. Rf and Power Amplifier, top view (disassembly)

85. Disassembly of the Frequency Selector Assembly

Disassembly of the frequency selector should be performed only by qualified personnel and with proper tools.

a. Tools Required for Disassembly of the Frequency Selector.

(1) Phillips screwdriver.

(2) Machinists three-point scriber.

(3) Waldes Truarc plier no. 2.

(4) Waldes Truarc plier no. 5112.

b. Separation of Front and Rear Plates.

(1) Remove spring O1299.31 from post O1269 (fig. 52).

(2) Remove E retainer ring H1225 and release loading on gear O1299.24 (fig. 53).

(3) Remove clamps O1243 and O1244 (fig. 54).

(4) Remove switch S1202 and J1201 (fig. 55).

(5) Remove relays K1201 through K1204, and indicators I1201 through I1204 (fig. 55).

(6) Remove cable clamps A (fig. 55).

(7) Remove memory drum scale plate and switch S1210 (fig. 55).

(8) Loosen clamp O1239 and collar O1299.33 (fig. 56).

(9) Remove mounting screws from drum brackets O1299.32 and A1212 and remove drum assembly (fig. 55).

(10) Remove switches S1203 and S1204 and ground lug B E1202 (fig. 53).

(11) Remove retainer ring H1220 (fig. 54).

(12) Remove gear O1299.23 and switch S1201 (fig. 56).

(13) Remove three mounting screws and remove motor B1201 and cable clamp D (fig. 54).

(14) Remove screws A, B, and C (fig. 54) and C (fig. 55).

(15) Block cam follower O1299.9 so that gear sector is disengaged from gear O1252 and clears cam O1299.26 (fig. 57). (Loosen clamp O1242 (fig. 54) to permit cam O1299.26 to rotate.)

(16) Separate front and rear plates.

c. Removal of the Small Gear Plate A1204 from the Rear Plate Assembly (fig. 58).

(1) Remove retainer ring H1222 and gear O1253.

(2) Remove spacer H1212 and screws A.

(3) Remove plate A1204.

d. Removal of Gears, Clutches, and Cams. Further disassembly of the frequency selector (figs. 58, 59, and 60) is straight-forward and requires no detailed procedure. The exploded view figure 61 will aid in locating parts.

86. Reassembly of the Frequency Selector Assembly

After the front and rear plate assemblies have been reassembled to the point at which disassembly was stopped in paragraph 85.c(3), proceed as follows.

a. Replacement of Plate A1204 (fig. 58).

(1) Place plate A1204 in position on the rear plate assembly.

(2) Replace screws A and spacer H1212.

(3) Replace gear O1253 and retainer ring H1222.

b. Rejoining Front and Rear Plate Assemblies.

(1) Load gears O1296 and O1273 by rotating until loading spring O1250 is closed. Insert gear loading rod into the holes provided to hold the loading until the front and rear gear plates are joined.

(2) Replace switch S1201 and gear O1299.23 on rear plate assembly.

(3) Rejoin the front and rear plate assemblies. See that gears mesh properly and that shafts seat in their respective bearings without binding.

(4) Replace switch S1206 screws A, B, and C (fig. 54) and screw C (fig. 55).

(5) Replace motor B1201 and its mounting screws.

Note. Motor B1201 is positioned by a shoulder on its front plate to insure proper mesh between the motor pinion and idler gear O1286.

(6) Replace switches S1203 and S1204 and ground lug B (fig. 55).

(7) Replace relays K1201 through K1204 (fig. 55).

(8) Replace switch S1202 (fig. 55).

(9) Replace cable clamps A (fig. 55).

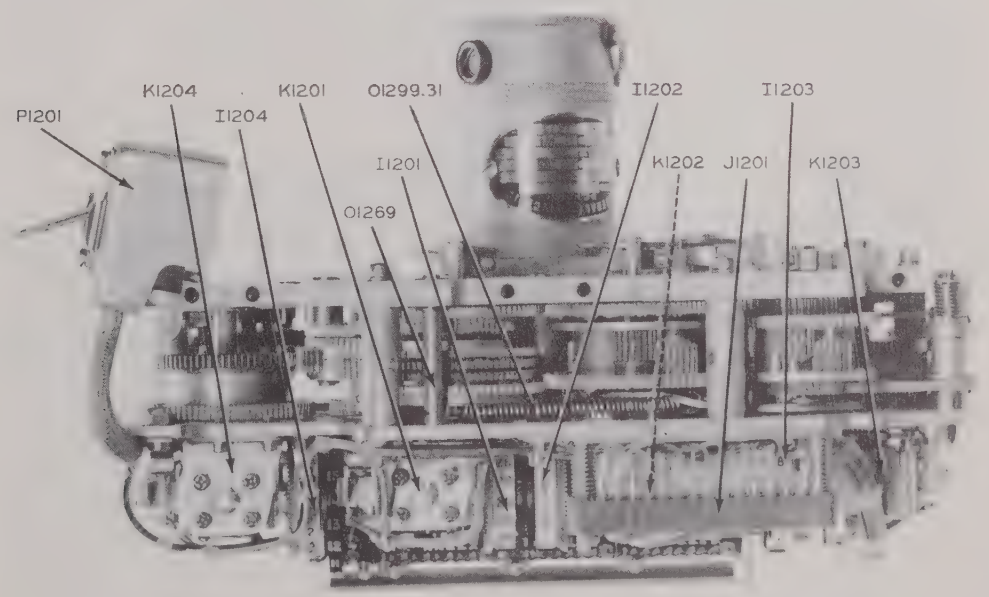



Figure 52. Frequency Selector, top view

(10) Replace clamps O1243 and O1244 (fig. 54). Tighten only O1243.

(11) Remove rod from gears O1296 and O1273.

(12) Load gear O1299.24 (fig. 53) to two inch pounds torque at coupler O1292 and replace E retainer ring H1225.

(13) Replace spring O1299.31 (fig. 52).

(14) Perform the mechanical synchronization procedure (par. 86.c.).

c. Mechanical Synchronization Procedure. The synchronization procedure must be performed whenever the frequency selector is wholly or partially disassembled. It is assumed that upon reassembly, the memory drum assembly, switch S1205, switch S1206, and gear O1271 have not been replaced and that clamps O1242 and O1244 have not been tightened.

(1) Adjust relays K1201 through K1204 to make contact when the pawl is on the periphery of the stop wheel and to have .030 inch minimum gap when the pawl is fully seated in the stop wheel notch. Pawls must clear stop wheel by .015 inch minimum when relays are energized. Relay armatures must be free when pawls are seated in stop wheel notches.

(2) See that all pawls are seated in stop wheel notches.

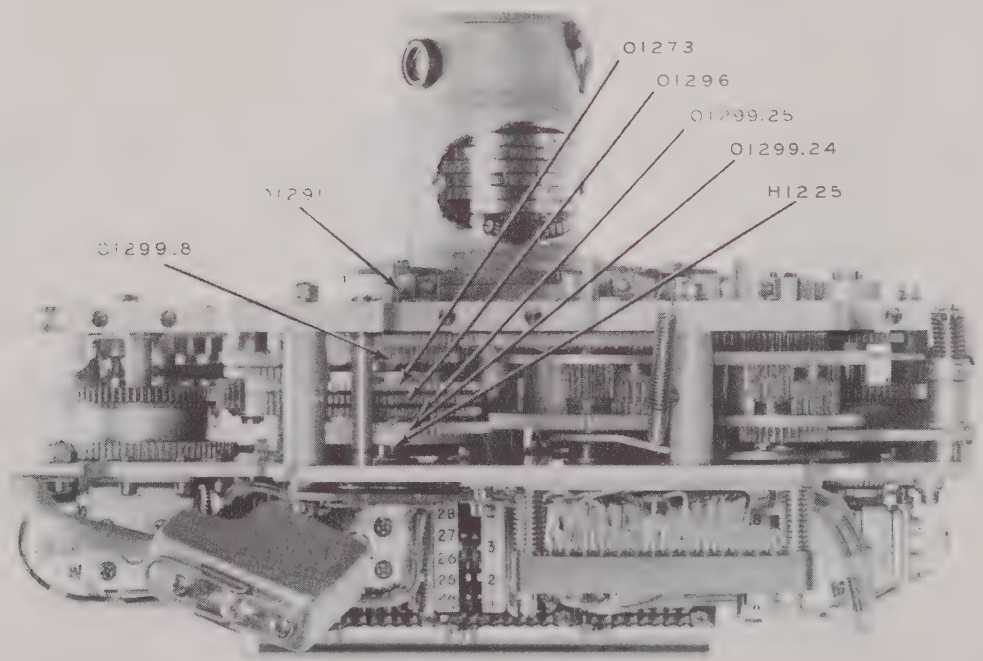



Figure 53. Frequency Selector, top view, cam follower spring removed from post

(3) Synchronize the tenth megacycle Autopositioner at 0.0.

(a) Set cam follower O1299.9 on the high point of cam O1297 as indicated by the scribe mark (fig. 62).

(b) Tighten clamp O1244 (fig. 54).

(c) Loosen clamp O1238 (fig. 57) and center the notch in the rotor of S1204 over the clip with the black wire (fig. 63).

(d) Tighten clamp O1238.

(4) Synchronize the unit megacycle Autopositioner at 0.0.

(a) Set cam follower O1299.4 to the high point of cam O1299.26 as indicated by the scribe mark (fig. 63).

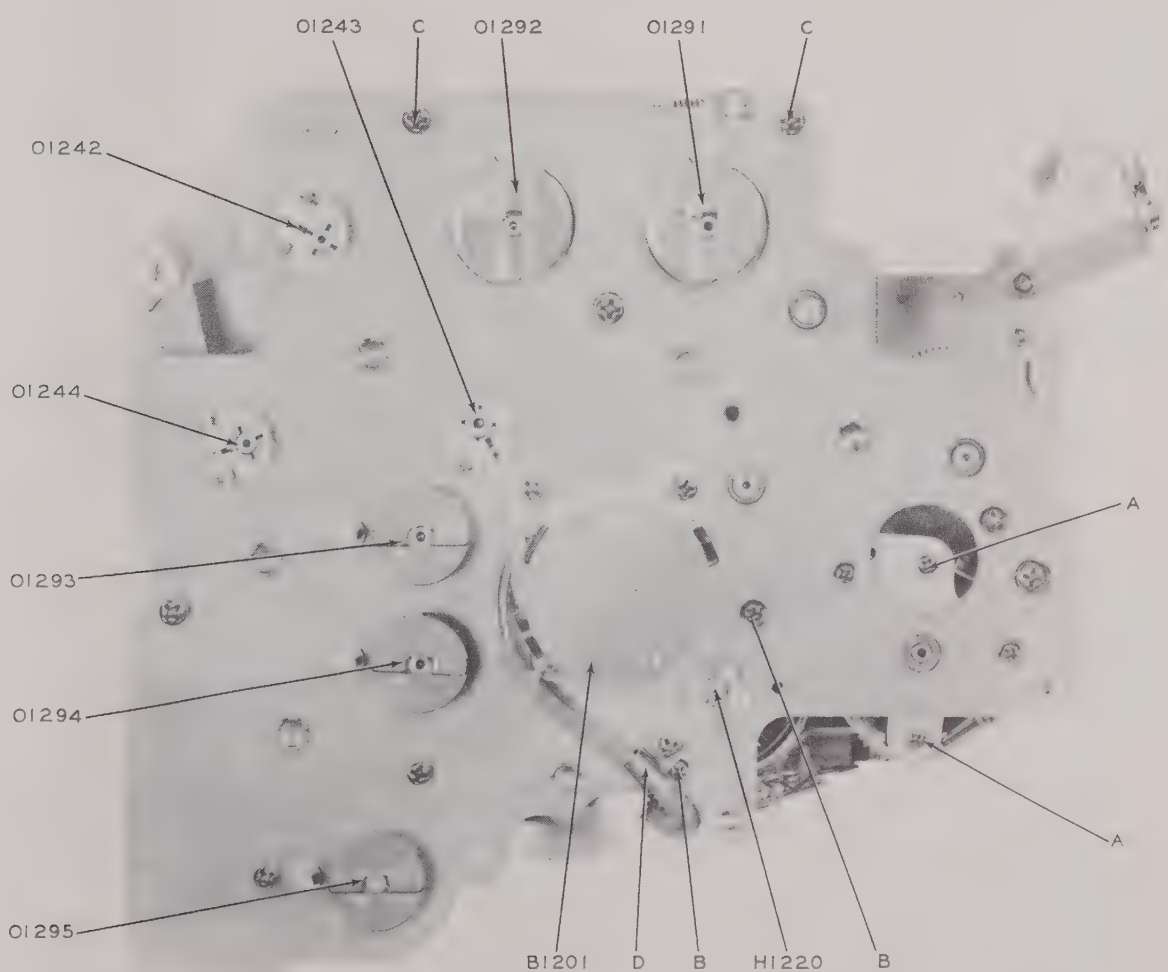



Figure 54. Frequency Selector, rear view, 399.9 mc

(b) Tighten clamp O1242 (fig. 54).

(c) Loosen clamp O1243 (fig. 54) and center the notch in the rotor of S1203 over the clip with the black wire (fig. 63).

(d) Tighten clamp O1243.

(5) Synchronize the ten megacycle Autopositioner at 220.0.

(a) Unmesh gear O1299.23 from gear O1268 (fig. 63).

(b) Center the seeking switch S1201 tab in the first clip to the left of the bottom switch standoff as viewed from the front (red wire).

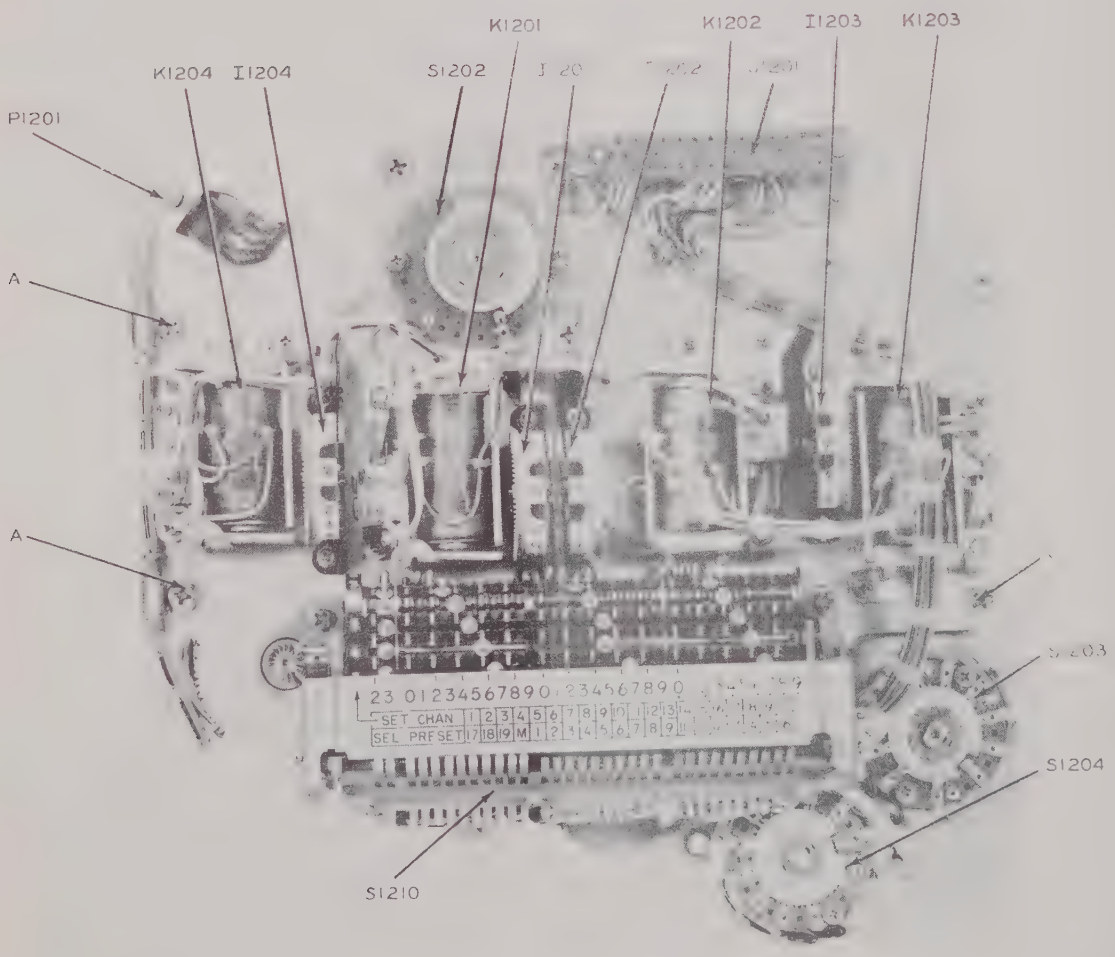



Figure 55. Frequency Selector, front view, 399.9 mc

(c) Remesh gear O1299.23 and O1268.

(d) Loosen clamp O1237 (fig. 64) and adjust blanking switch S1202 rotor to the position shown in figure 63. Backlash or looseness of the rotor must not permit contact with the clip having the black wire.

(e) Tighten clamp 0.237.

(6) Synchronize the preset channel Autopositioner at preset 5.

(a) Replace the channel memory drum, gear O1271, and collar O1299.33 (fig. 56). Do not tighten clamp O1239 or collar O1299.33 at this time.

(b) Replace memory drum scale plate and switch S1210 (fig. 55).

(c) Adjust switch S1205 and S1206 rotors to center the notches over the clips with the gray wires.

(d) Unmesh the miter gears which drive the memory drum and adjust the drum so that the fingers in the preset 5 slot are centered over the curved portion of the switch S1210 actuating fingers.

(e) Remesh gears O1271 and O1270 and tighten clamp O1239 (fig. 56).

(f) Replace indicators I1201 through I1204 to indicate preset 5, frequency 220.0 as shown in figure 63.

(g) Set frequency selector to 399.9 mc and set couplers O1291 through O1295 as shown in figure 54.

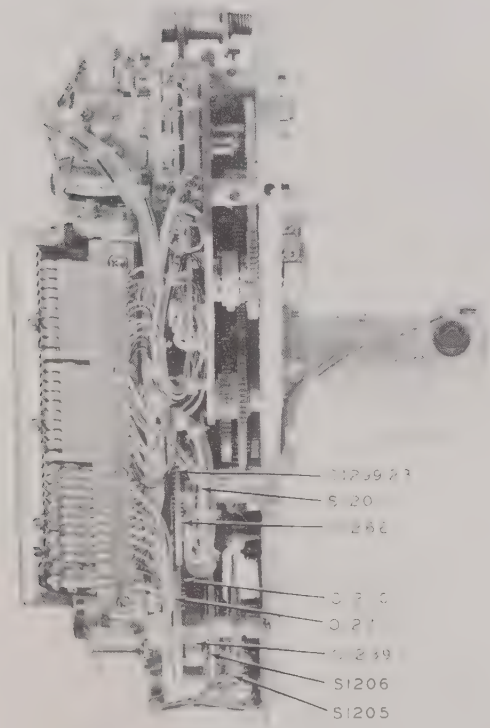



Figure 56. Frequency Selector, bottom view

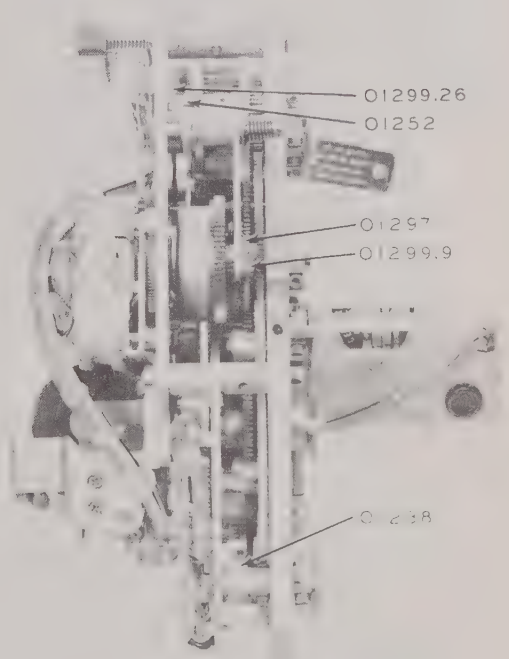



Figure 57. Frequency Selector, right side view

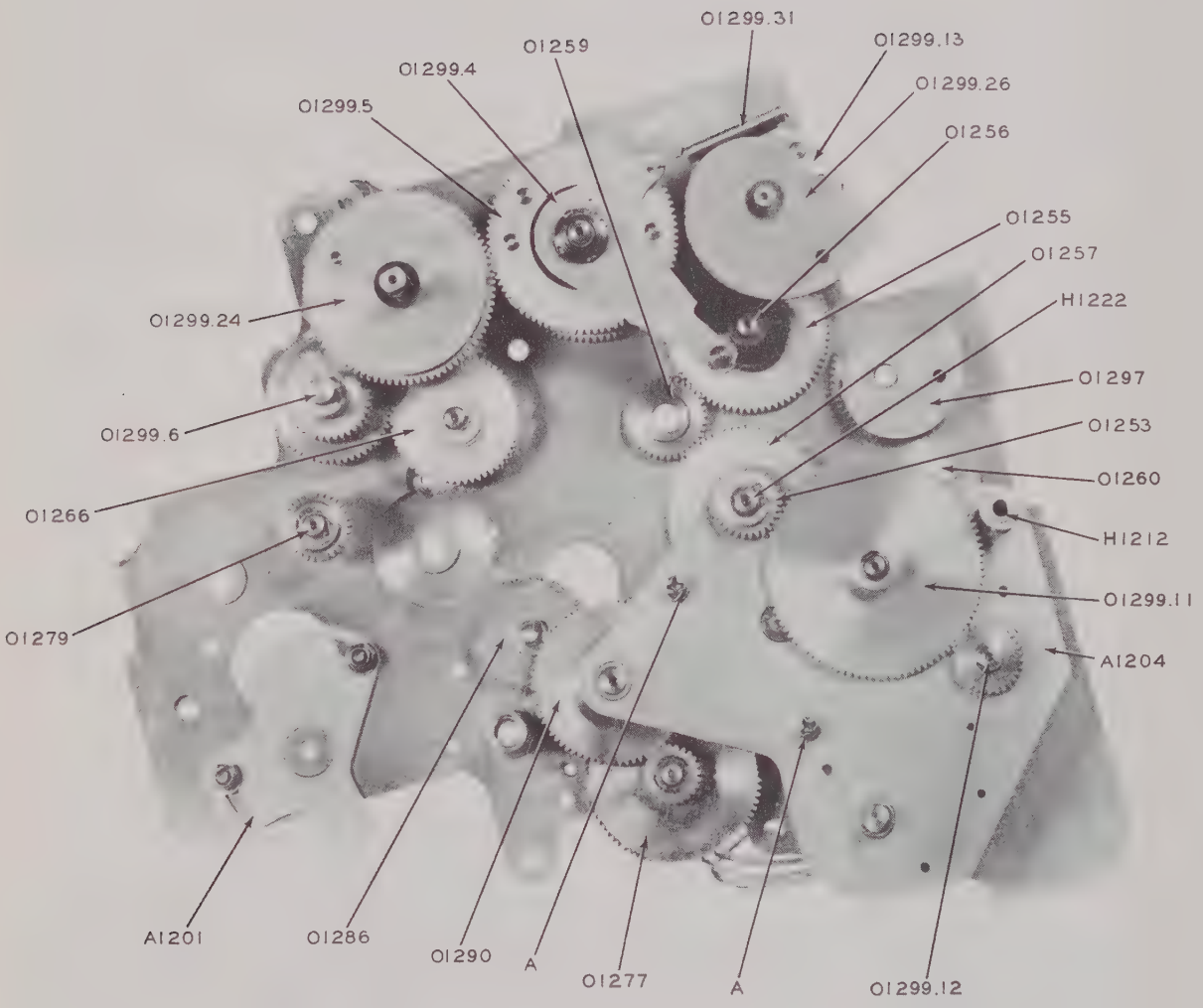



Figure 58. Frequency Selector Rear Plate, front view

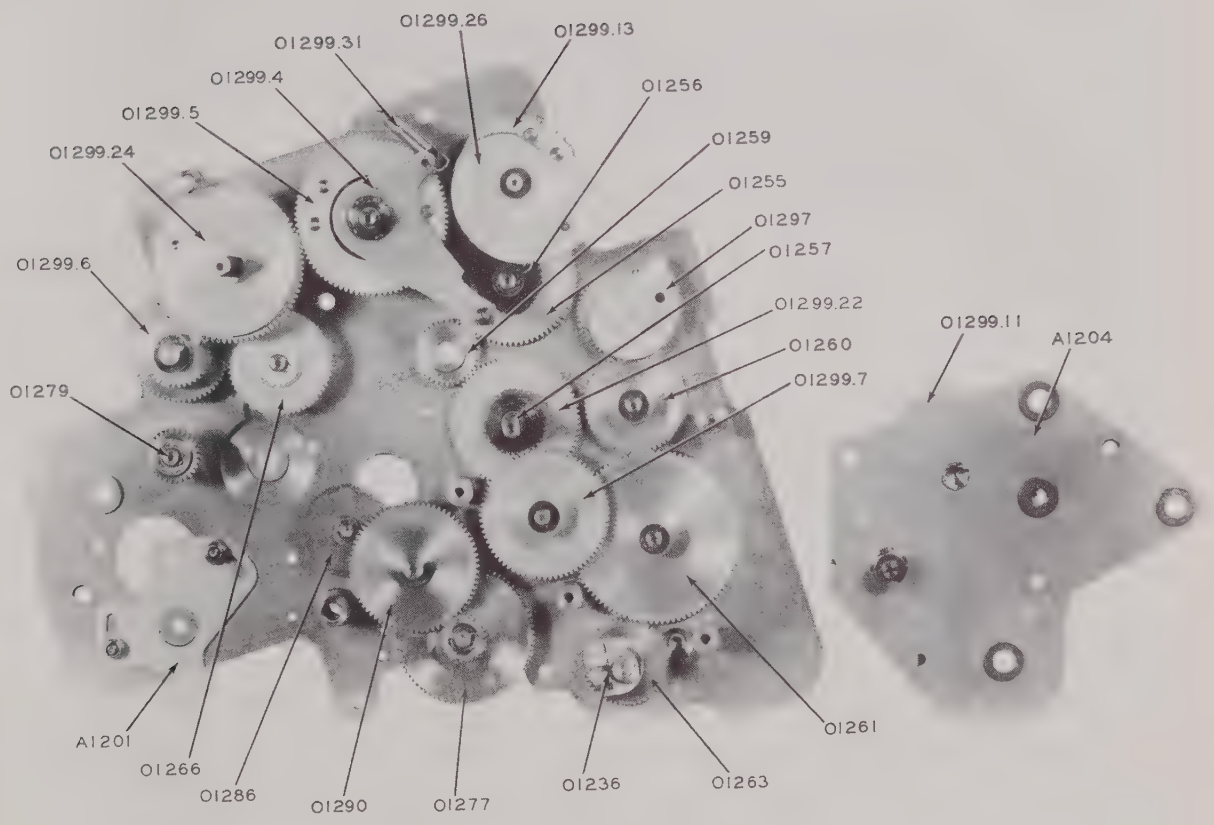



Figure 59. Frequency Selector Rear Plate, front view, small gear plate removed

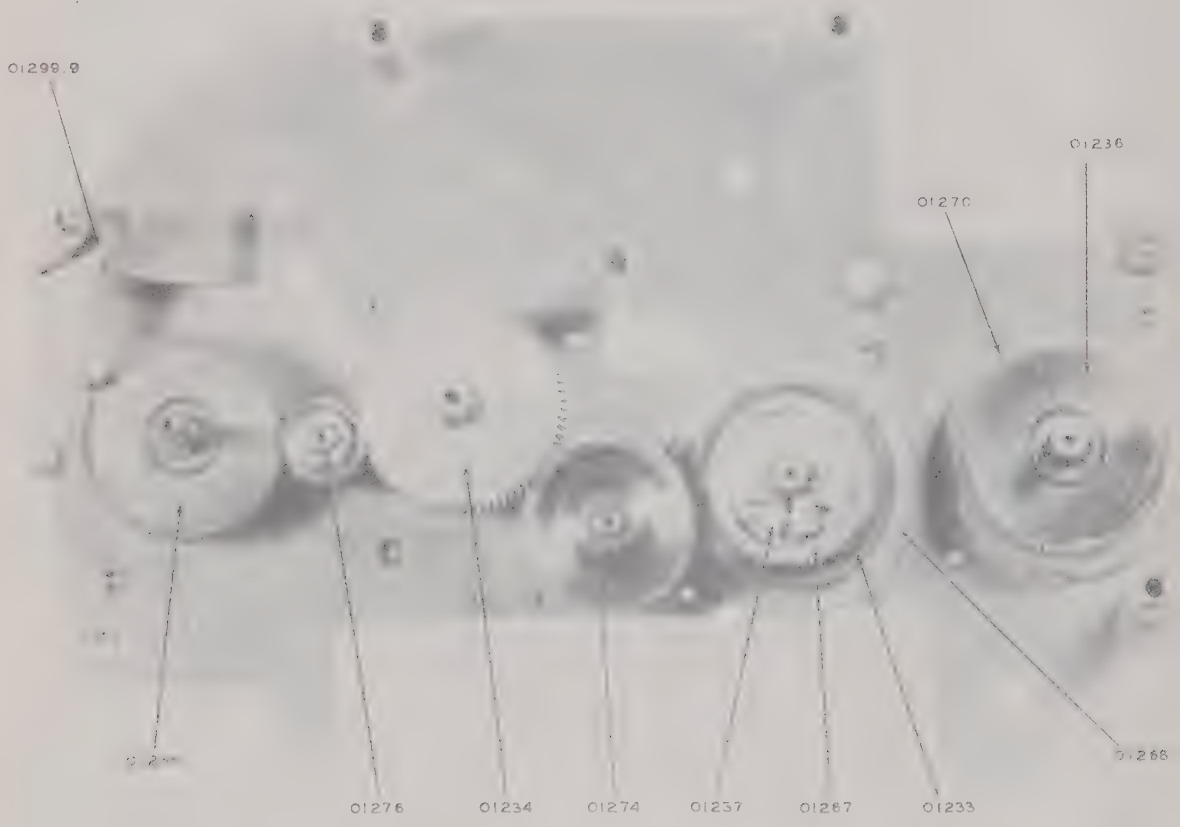
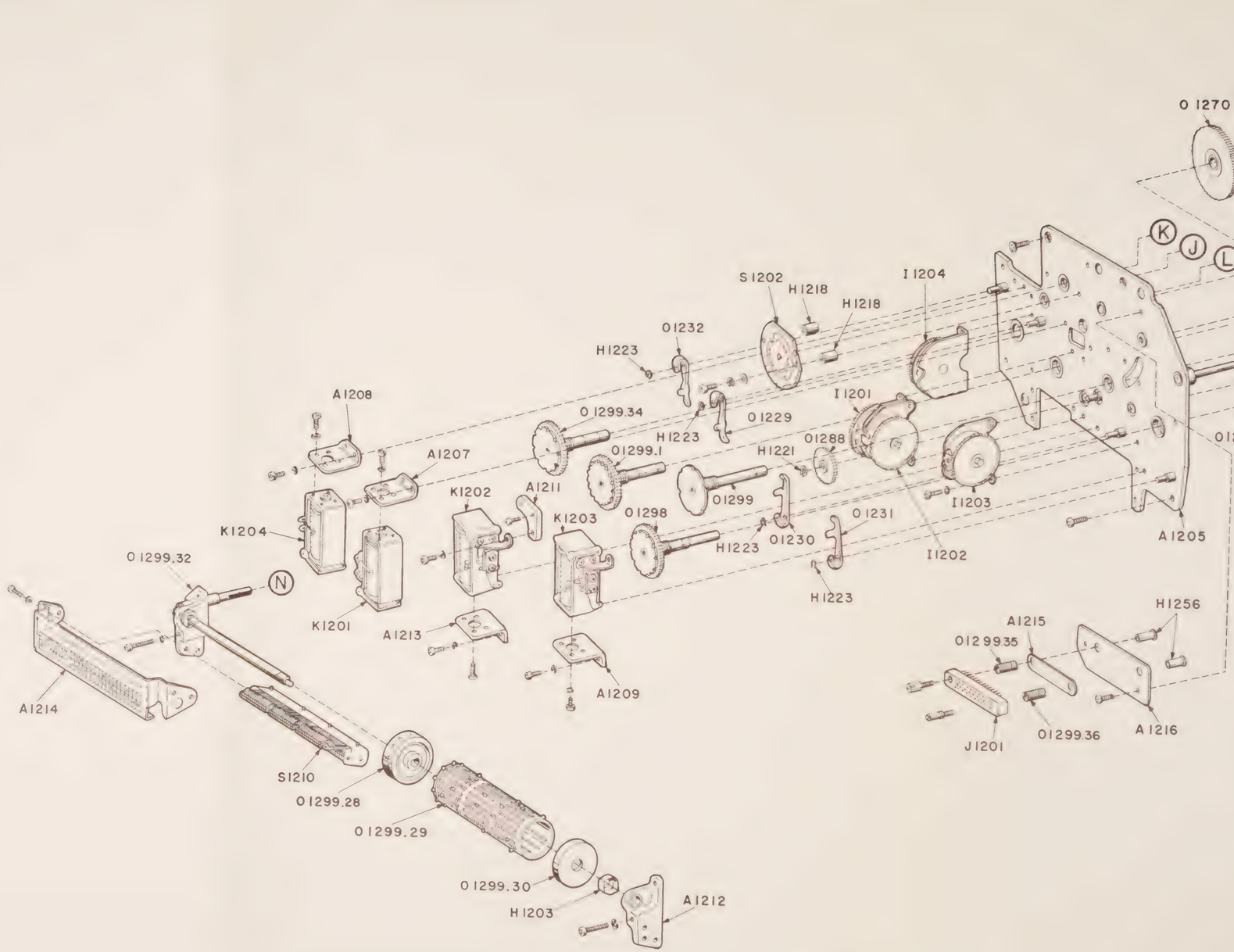



Figure 60. Frequency Selector Front Plate, rear view


01270
01204
01228
H1227
01208
01212
01222
01223
01224
01236
H1222
01213
01209
01205
01225
H1227
01201
01268
01202
01299.26
M
H1227
H1204
H1220
01246
01226
01248
H1204
01274
H1204
H1220
H1204
01299.9
H1220
01247
01278
H1220
H1204
I1204
S1202
H1218
H1218
01232
H1223
A1208
01299.34
01229
H1223
I1201
01288
H1221
A1207
01299.1
01299
01231
01230
H1223
I1203
I1202
A1205
K1202
A1211
K1203
01298
K1204
01299.32
N
K1201
A1213
A1209
A1214
S1210
01299.28
01299.29
01299.30
H1203
A1212
H1256
A1215
01299.35
01299.36
A1216
J1201

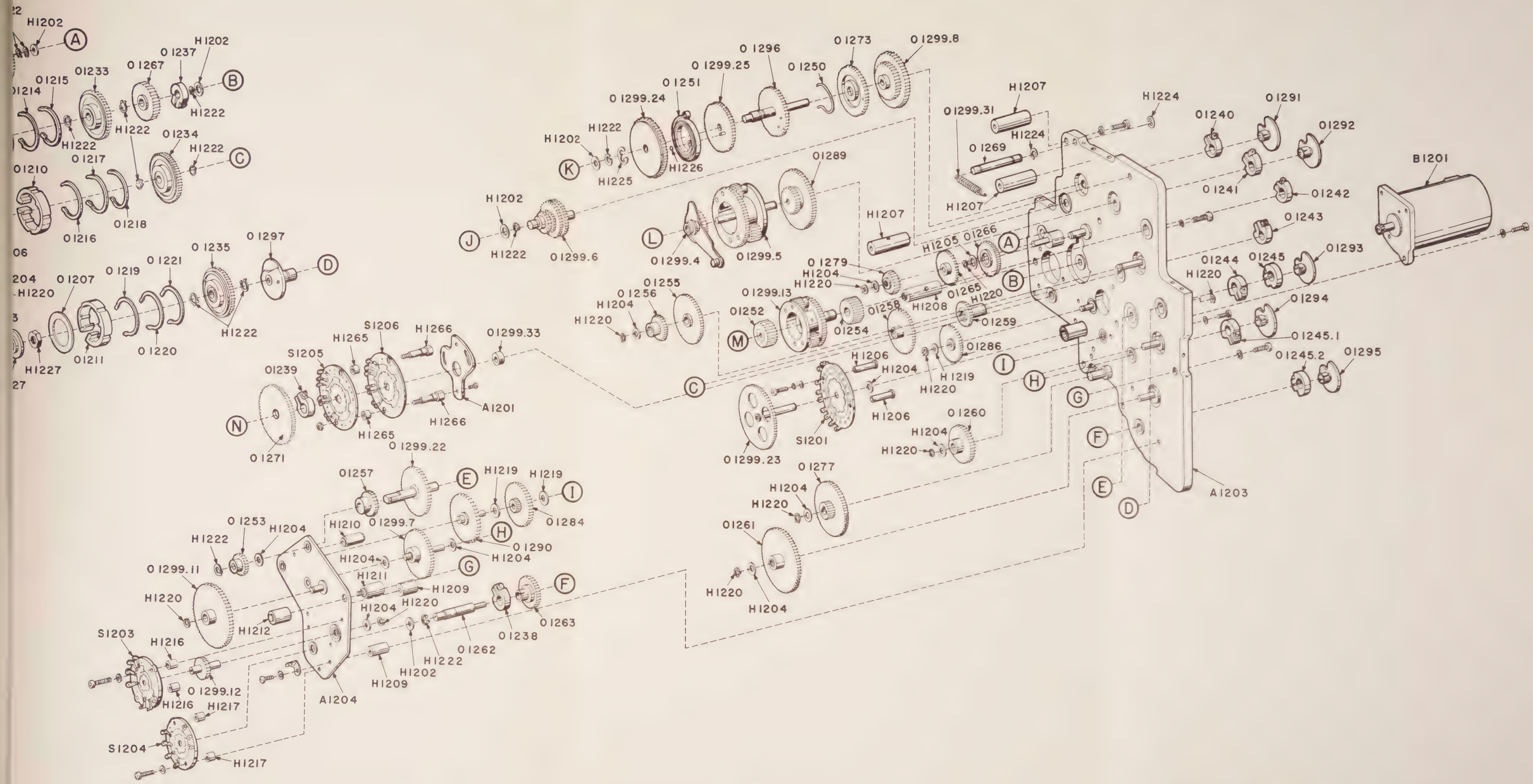



Figure 61. Frequency Selector, exploded view

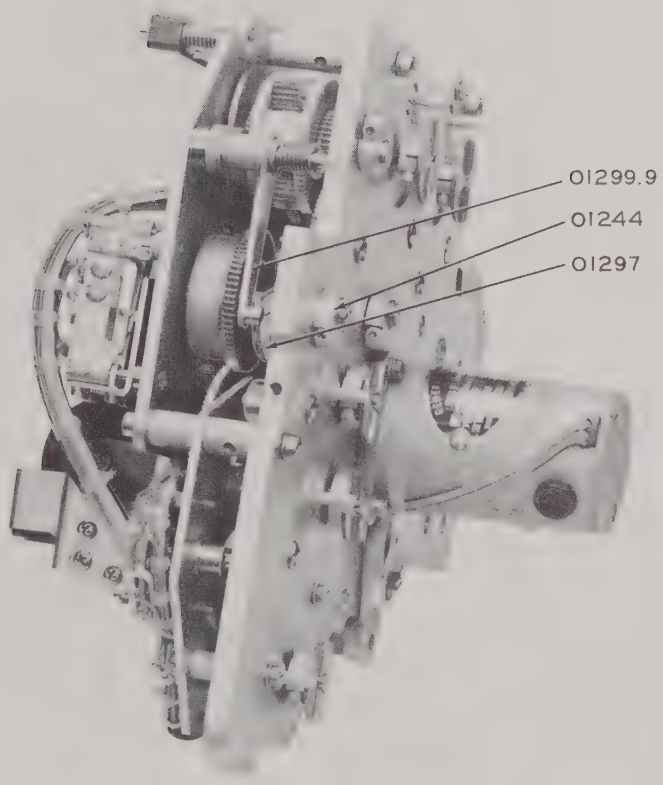



Figure 62. Frequency Selector, right rear view, 220.0 mc preset 5

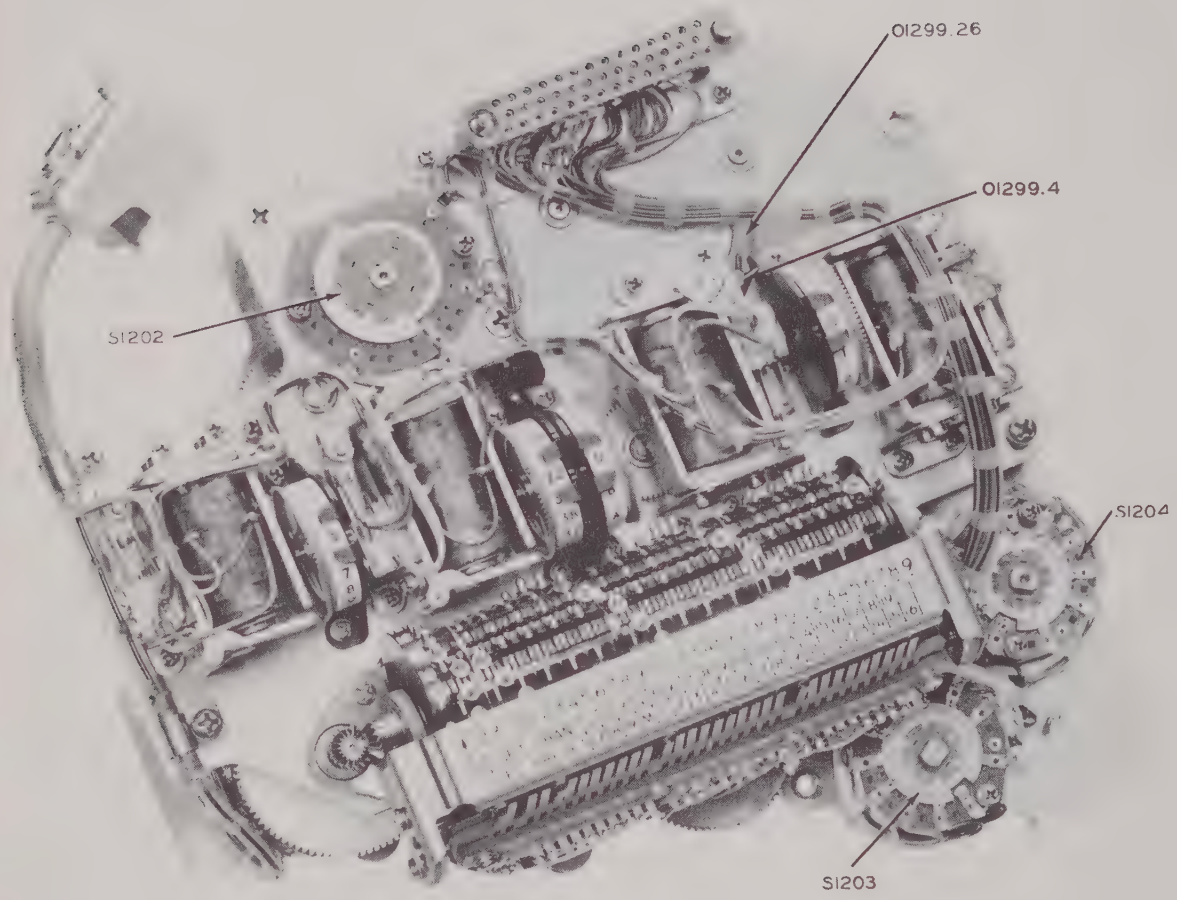



Figure 63. Frequency Selector, front view, 220.0 mc preset 5

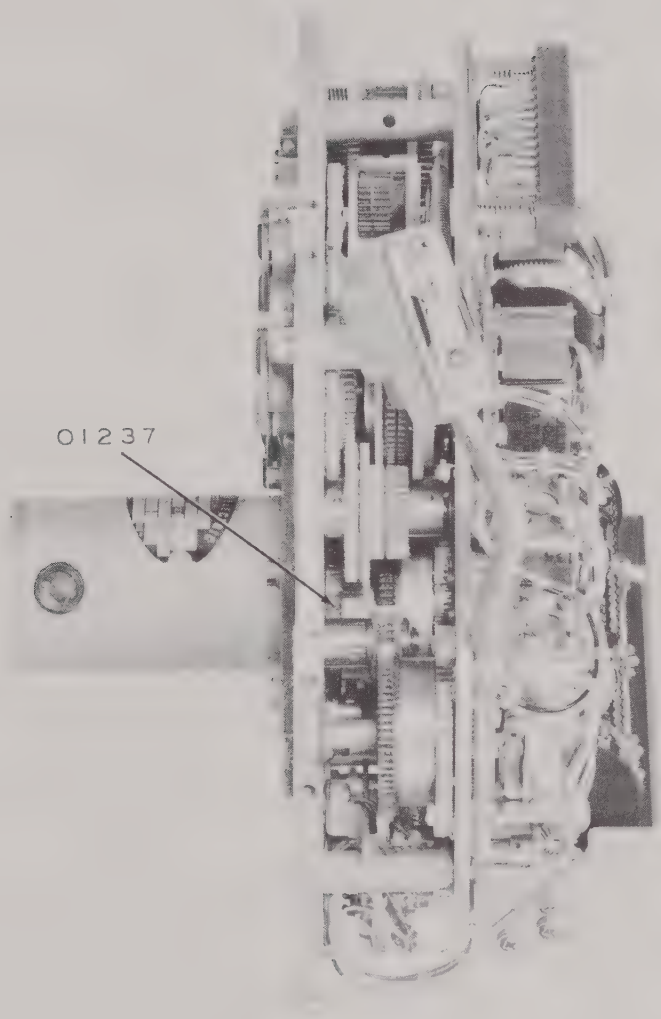



Figure 64. Frequency Selector, left side view (synchronization)

87. Installation of Rf and Power Amplifier, Uhf Injection System, 20.0 to 29.9 Mc If. Amplifier, and 3.0 to 3.9 Mc If. Amplifier in Receiver-Transmitter RT-323(XC-2)/VRC-24

a. Set the frequency selector to 399.9 mc.

b. Set the couplers on the subassemblies so that when viewed from the front with the unit resting on its mounting feet, the slot in the coupler is vertical and the guide pin is in the upper right.

c. Install the units in the receiver-transmitter. If necessary, rock the coupler in the subassembly. Do not disturb the setting of the couplers on the frequency selector.

d. Check the clearance between the drive couplers and the driven couplers with a 0.005 inch feeler gauge. Readjust the drive couplers if necessary to obtain 0.005 inch clearance. Do not disturb the angular adjustment of the couplers.

88. Mechanical Synchronization of Subassemblies

a. Synchronization of Rf and Power Amplifier.

(1) Tune the set to 399.9 mc.

(2) Align the main tuning capacitors so that the small tab on the rotor is in full mesh with the stator and the tab opposite it is in half mesh.

(3) Loosen the clamp on the drive coupler on the frequency selector to make adjustments, if required.

b. Synchronization of Uhf Injection System.

(1) Tune the set to 399.9 mc.

(2) Align the main tuning capacitors so that the small tab on the rotor is in full mesh with the stator and the tab opposite it is in half mesh.

(3) Loosen the clamp on the drive coupler on the frequency selector to make adjustments if required.

(4) Tune the set to 33X.X mc.

(5) Set the rotor of crystal switch S202 so that the contact arm is vertical viewed through the opening in the top of the oscillator cover.

(6) Loosen the clamp on the crystal switch drive gear to make adjustments if required.

c. Synchronization of 20.0 to 29.9 Mc If. Amplifier.

(1) Tune the set to 399.9 mc.

(2) Set the cam follower a few degrees out of the valley of the cam as shown in figure 79.

(3) Set switches S301 and S302 to contact crystal Y310.

(4) Loosen the appropriate drive coupler on the frequency selector to make adjustments if required.

d. Synchronization of 3.0 to 3.9 mc If. Amplifier

(1) Tune the set to 399.9 mc.

(2) Set the cam follower on the lowest step out of the valley of the cam.

(3) Set switch S402 to contact crystal Y409.

(4) Loosen the drive coupler on the frequency selector to adjust the position of the cam.

89. Lubrication

Lubrication of the mechanical parts of Receiver-Transmitter RT-323(XC-2)/VRC-24 is necessary only when units are removed or disassembled during cleaning or servicing. When lubrication is required, proceed as follows.

a. Lubrication of the 20.9 to 29.9 Mc If. Amplifier.

(1) Lubricate cam faces with a thin film of grease Mil-G-7421.

(2) Lubricate cam followers with one drop of Mil-G-7870.

b. Lubrication of the 3.0 to 3.9 Mc If. Amplifier.

(1) Lubricate cam faces with a thin film of grease Mil-G-7421.

(2) Lubricate cam followers with one drop of oil Mil-L-7870.

c. Lubrication of Frequency Selector.

(1) Lubricate teeth of all gears with a thin film of grease Mil-G-7421.

Caution: Do not permit grease or oil to get into clutch assemblies. Oil or grease on clutch faces will cause operational failure of the frequency selector.

(2) Lubricate cam faces with a thin film of grease Mil-G-7421.

(3) Lubricate bore of cam follower O1299.4 with a thin film of grease Mil-G-7421.

(4) Lubricate porous bronze bearings with one drop of oil Mil-L-7870.

(5) Lubricate bores of differential planetary gears with one drop of oil Mil-L-7870.

(6) Lubricate pawl pivot studs with one drop of oil Mil-L-7870.

d. Lubrication of Dynamotor and Case Blower Bearings.

(1) Remove bearings from dynamotor and case blower.

(2) Clean thoroughly in Solvent Dry Cleaning (SD).

(3) Dry thoroughly.

(4) Repack with Grease Mil-G-3278.

(5) Reinstall bearings and reassemble units.

## Section V. ALIGNMENT

Note. The following alignment procedure is recommended for radio sets which require complete realignment. When only minor retuning is required or when only one subunit has been replaced, the procedure outlined in paragraph 84 may be used.

Caution: Become thoroughly familiar with the following tuning and tracking procedure before attempting any alignment of Receiver-Transmitter RT-323(XC-2)/VRC-24.

### 90. Test Equipment Required for Alignment

The following test equipment is required for alignment of Receiver-Transmitter RT-323(XC-2)/VRC-24.

| Nomenclature | Common Name |
|---|---|
| Vhf Signal Generator Model 608D (Hewlett-Packard Co.) | Signal Generator |
| Audio Oscillator TS-382A/U | Audio Oscillator |
| Electronic Multimeter TS-505/U | VTVM |
| Electronic Multimeter ME-6B/U | Ac Voltmeter |
| Termaline Wattmeter Model 61 (Bird Electronic Corp.) | Rf Wattmeter |

### 91. Alignment of Receiver-Transmitter RT-323(XC-2)/VRC-24

The mechanical synchronization described in paragraphs 86.c. and 88. must be performed before the following alignment procedures are performed.

a. 3.0 to 3.9 Mc Oscillator Check (fig. 80).

(1) Energize the equipment and permit it to warm up.

(2) Connect the dc probe of the vtvm to J402. Set the meter to the -10 vdc range.

(3) With the 0.1 mc switch manually tune the set to each of the 10 channels from XXX.9 to XXX.0 mc.

(4) On receive, the voltage at J402 should be between -2.0 to -3.5 vdc. On transmit, the voltage at J402 should be between -6 and -9 vdc.

b. Alignment of the 17 to 26 Mc Oscillator.

(1) With the 1.0 mc jog switch, manually tune the set to XX9.X mc.

(2) With the special alignment screwdriver provided, turn trimmer capacitor C340 clockwise to its stop. Then turn counterclockwise seven complete turns.

Warning. The trimmer shaft is at B+ potential. Avoid direct contact with shaft and do not short to ground.

(3) With a phenolic screwdriver, adjust the slug of L310 so that the top of the slug is one inch from the top of the tank compartment cover.

(4) Connect the dc probe of the vtvm to J305. Set the meter to the -3 vdc range.

(5) Tune the set to XX5.X mc.

(6) With the phenolic screwdriver, tune L310 for maximum reading on the vtvm.

(7) Tune the set to XX9.X mc.

(8) With the special alignment screwdriver, tune C340 for maximum reading on the vtvm.

(9) Tune the set to XX0.X mc.

(10) Tune L310 for maximum reading on the vtvm.

(11) Repeat steps 7, 8, 9, and 10 until no further increase in voltage at J305 can be obtained.

(12) Tune the set in 1 mc increments from XX9.X to XX0.X mc and check tuning of L310 with the tuning wand (par. 30). Make minor adjustments if necessary to insure proper tracking.

c. Alignment of the 3.0 to 3.9 Mc If. Amplifier (fig. 80).

(1) Tune the set to XXX.9 mc.

(2) Turn the slugs of L402, L404, and L406 counterclockwise to their stops, then three complete turns clockwise.

(3) Adjust the slugs of L401, L403, and L405 so that the tops of the slugs are 1-3/32 inches from the top of the cover. Use a phenolic screwdriver.

(4) Connect the dc probe of the vtvm to J507. Set the meter to the -3 vdc range.

(5) Tune the set to XX0.0 mc.

(6) Inject a 20.0 mc signal from the signal generator at J303. Adjust the output of the signal generator to give a readable indication on the vtvm.

(7) Tune L303, L304, L305, and L306 for maximum voltage at J507.

Note. While tuning, adjust the signal generator output to keep the voltage at J507 below -2 vdc.

(8) Tune the set to XX9.9 mc.

(9) Set the signal generator frequency to 29.9 mc.

(10) Tune trimmer inductances L402, L404, and L406 for maximum voltage at J507.

(11) Repeat steps 5 through 10 until no further increase in voltage at J507 is obtained.

(12) Tune the set in 0.1 mc increments from XX9.9 to XX9.0 mc and tune the signal generator in 0.1 mc increments from 29.9 to 29.0 mc. Check the tuning of L401, L403, and L405 with the tuning wand. Make minor adjustments if necessary to insure proper tracking.

d. Alignment of the 20.0 to 29.9 Mc If. Amplifier (fig. 76)

(1) Tune the set to XX9.9 mc.

(2) Turn trimmer capacitors C302, C304, C306, C309, C312, and C317 counterclockwise to their stops.

Warning. Capacitors C306 and C312 are at B+ potential. Avoid direct contact with capacitors and do not short to ground.

(3) Adjust the slugs in L301 through L306 so that the tops of the slugs are 1 inch from the top of the cover. Use a phenolic screwdriver.

(4) Connect the dc probe of the vtvm to J507. Set the meter to the -3 vdc range.

(5) Tune the set to XX0.0 mc.

(6) Inject a 20.0 mc signal from the signal generator at J301. Set the output of the signal generator to give a readable indication on the vtvm.

(7) Tune L303, L304, L305, and L306 for maximum voltage at J507.

Note. During alignment readjust signal generator output to keep the voltage at J507 below -2 volts.

(8) Tune the set to XX9.9 mc.

(9) Set the signal generator to 29.9 mc.

(10) Tune capacitors C306, C309, C312, and C317 for maximum voltage at J507.

(11) Repeat steps 5 through 10 until no further increase in voltage at J507 is obtained.

(12) Tune the set in 1.0 mc increments from XX9.9 to XX0.9 mc and tune the signal generator in 1.0 mc increments from 29.9 mc to 20.9 mc. Check the tuning of L303, L304, L305, and L306 with the tuning wand. Make minor adjustments if necessary to insure proper tracking.

Note. Tanks Z301 and Z302 will be aligned during alignment of the rf and power amplifier.

e. Alignment of the Master Oscillator (fig. 72).

(1) Tune the set to 39X.X mc.

(2) Connect the dc probe of the vtvm to J201. Set the meter to the -3 vdc range.

(3) Tune trimmer inductance L218, through the hole marked 39 in the master oscillator rear plate, for maximum voltage at J201.

(4) Tune the set to 38X.X mc and tune trimmer inductance J217 through the hole marked 38 for maximum voltage at J201.

(5) Continue through the frequency range of the set in 10 mc increments tuning the appropriate trimmer inductance for maximum voltage at J201. The trimmers for each channel are marked with the first two digits of the channel frequency. For example, at 25X.X mc tune the trimmer marked 25.

f. Alignment of the Frequency Multiplier Amplifier (FMA) (fig. 73).

(1) Turn trimmer capacitors C215, C221, C227, and C233 counterclockwise to their stops (minimum capacity).

(2) Tune the set to 39X.X mc.

(3) Connect the rf probe of the vtvm to J202 (between V202 and V203). Set the meter to the 1 volt rf range.

(4) Turn C215 clockwise to the first voltage maximum at J202.

(5) Move the rf probe to J203 (between V203 and V204) and tune C221 for first voltage maximum at J203.

(6) Move the rf probe to J204 (between V204 and V205) and tune C227, for first voltage maximum at J204.

(7) Connect the dc probe of the vtvm to J106 on the rf and power amplifier. Set the meter to the -3 vdc full scale range.

(8) Tune C233, C227, C221, and C215 for maximum voltage at J106. This voltage should be approximately 1.8 to 2.75 volts.

(9) Track the FMA by bending the tabs on the rotors of the main tuning capacitors. Follow the procedure in the following table. Start with Z208 then Z206, Z204, and Z202. In each case, bend the tab that is in half mesh with the stator for maximum voltage at J106. Use a thin phenolic rod pointed at one end to bend the tabs.

Caution: In some cases, the tabs will fan out as much as 30°. Do not exceed the 30° bend since any bending beyond this point produces little change in capacitance and may weaken the tab.

g. Tracking Table for FMA and Rf and Power Amplifier.

| Frequency Mc | Tab Color |
|---|---|
| 399.9 | Black |
| 389.9 | White |
| 379.9 | Yellow |
| 369.9 | Orange |
| 359.9 | Blue |
| 349.9 | Brown |
| 339.9 | Green |
| 329.9 | Red |
| 319.9 | White |

g. Tracking Table for FMA and Rf and Power Amplifier (Cont).

| Frequency Mc | Tab Color |
|---|---|
| 309.9 | Blue |
| 299.9 | Red |
| 289.9 | Brown |
| 279.9 | Green |
| 269.9 | Yellow |
| 259.9 | White |
| 249.9 | Orange |
| 239.9 | Black |
| 229.9 | Yellow |
| 220.9 | Red |

h. Alignment of Rf and Power Amplifier (fig. 65).

(1) Preset trimmer capacitors C107, C115, C122, and C127 to their counterclockwise stops.

(2) Connect the signal generator to ANT. jack J701 (on front panel) through a 50 ohm 6 db pad.

(3) Connect the dc probe of the vtvm to J507 (on 500 kc if. chassis). Set the meter to the -3 vdc range.

(4) Tune the set and the signal generator to 399.9 mc. Adjust the output of the signal generator to give a readable indication on the VTVM.

Note. During alignment, adjust the output of the signal generator to keep the voltage at J507 below -2 vdc.

(5) Tune C122, C115, and C107 for maximum voltage at J507.

(6) Tune the set and the signal generator to 390.0 mc.

(7) Tune L302 and L301 (in 20.0 to 29.9 mc if. amplifier) for maximum voltage at J507.

(8) Tune the set and the signal generator to 399.9 mc.

(9) Tune C304 and C302 (in 20.0 to 29.9 mc if. amplifier) for maximum voltage at J507.

(10) Repeat steps (6) through (9) until no further increase in voltage at J507 is obtained.

(11) Track the rf amplifier by bending the tabs on the rotors of the main tuning capacitors. Start with Z105 then Z103 and Z101. In each case, bend the tab that is in half mesh with the stator for maximum voltage at J507. The tracking table, subparagraph g. above, shows the color of the tab for each frequency. Tune both the set and the signal generator to the frequency indicated for each step.

(12) Disconnect the signal generator from ANT. jack J701 and connect the 50 ohm rf wattmeter in its place.

(13) Set METER switch S704 to PA $I_g$.

(14) Tune the set to 399.9 mc.

(15) Energize the radio control circuit.

(16) Tune trimmer capacitor C127 until a peak in power amplifier grid current is indicated on the front panel meter M701.

(17) Immediately tune trimmer capacitor C132 for maximum power output.

(18) Repeat steps (16) and (17) until maximum output is obtained.

(19) Loosen the two screws holding coupling loop L111 (fig. 65) and rotate the loop for maximum power output.

(20) Retune C132 for maximum power output.

(21) Continue to alternately adjust coupling loop L111 and trimmer capacitor C132 until maximum power output is obtained.

(22) Tighten the mounting screws on L111.

(23) Set METER switch S704 to PA $I_b$.

(24) Adjust R108 (fig. 65) for midscale indication on front panel meter M701.

(25) Track Z108 and Z107, for maximum power output following the procedure in step (11) above.

(26) De-energize the radio control circuit.

i. Internal Adjustment of Carrier Squelch.

(1) Set SQUELCH control R711 to its maximum clockwise position.

(2) Connect the signal generator to ANT. jack J701 through a 6 db pad.

(3) Tune the set and the signal generator to 399.9 mc. Adjust the output of the signal generator to supply a 50 microvolt unmodulated rf signal to J701.

(4) Starting from the clockwise stop, turn R712 (fig. 98) counterclockwise until the SQUELCH light just lights but extinguishes with a slight decrease in signal from the signal generator.

j Adjustment of Signal Plus Noise to Noise Squelch (fig. 88).

(1) Turn SQUELCH control R711 counterclockwise to the point just before the switch operates.

(2) Connect jumper (fig. 89) to enable the signal plus noise to noise squelch circuit.

(3) Connect the signal generator to ANT. jack J701 through a 6 db pad.

(4) Tune the set and the signal generator to 399.9 mc and adjust the signal generator output to supply a 3 microvolt rf signal modulated 30% at 400 cps to J701.

(5) Adjust R805 until the SQUELCH light just lights.

(6) Reduce the signal generator output and check that the SQUELCH light extinguishes. Slowly increase the signal generator output and see that the SQUELCH light lights at approximately 3 microvolts.

k. Adjustment of Audio Amplifier and Modulator (fig. 88). Connect a 600 ohm 2 watt loading resistor from P1-F speaker audio output to ground before performing the following procedures.

(1) Connect the rf wattmeter to ANT. jack J701.

(2) Energize the radio control circuit.

(3) Connect the ac voltmeter in series with a 0.1 mfd 600 v capacitor to J803 and set the meter to the 500 vac range.

(4) Connect the audio oscillator to the af input J702-C. Connect a 10,000 ohm resistor in series with the hot lead from the audio oscillator for isolation and connect a 150 ohm resistor across the input to the radio set to simulate a microphone. Ground the oscillator to the radio set.

(5) Adjust the audio oscillator to supply 0.1 volt at 1000 cps to J702-C.

(6) Adjust R831 (limiter control) to obtain 180 vac at J803.

(7) De-energize the radio control circuit and disconnect the rf wattmeter from ANT. jack J701.

(8) Connect the signal generator to ANT. jack J701. Connect a 6 db pad in series with the generator lead and set the generator to 399.9 mc.

(9) Adjust the signal generator to supply a 100 microvolt rf signal modulated 30% at 1000 cps to J701.

(10) Connect the ac voltmeter across a 600 ohm 2 watt loading resistor connected across the speaker audio output (P1-F to ground). Set the meter to the 50 vac range.

(11) Adjust R826 to obtain 25 vac across the 600 ohm loading resistor.

92. Alignment of Receiver-Transmitter RT-323(XC-2)/VRC-24 on Transmit Using Internally Generated Signals

a. To align Receiver-Transmitter RT-323(XC-2)/VRC-24 on transmit, energize the radio control circuit and follow the tuning procedures outlined above omitting the use of the signal generator. Substitute the test points and indications listed in the table below for those listed in paragraph 91 above.

b. Test Points and Indications for Aligning Receiver-Transmitter RT-323(XC-2)/VRC-24 on Transmit.

Note. Use the vtvm for all voltage measurements and become thoroughly familiar with the procedures outlined in paragraph 84 above before attempting any tuning or touch-up alignment of any subunit in the receiver-transmitter.

| Unit to be Aligned | Test Point | Indication |
|---|---|---|
| 3.0 to 3.0 mc if. amplifier | J304 | -6 to -9 vdc |
| 20.0 to 29.9 mc if. amplifier first stage | J302 | -0.8 to -2.5 vdc |
| 20.0 to 29.9 mc if. amplifier | J103 | 6 to 12 volts rf |
| Rf amplifier | J106 | -1.5 to -3.0 vdc |
| Uhf injection system 17 to 26 mc oscillator, Master oscillator, Driver, Power Amplifier. | | Use the indications listed in paragraph 91 above. |

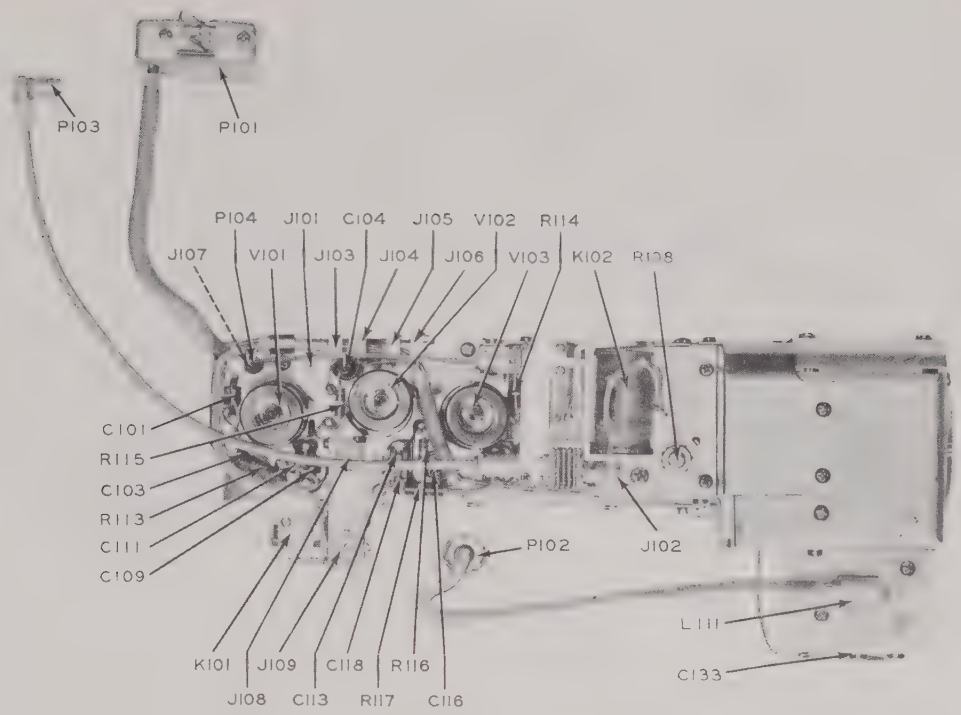



Figure 65. Rf and Power Amplifier, right side view

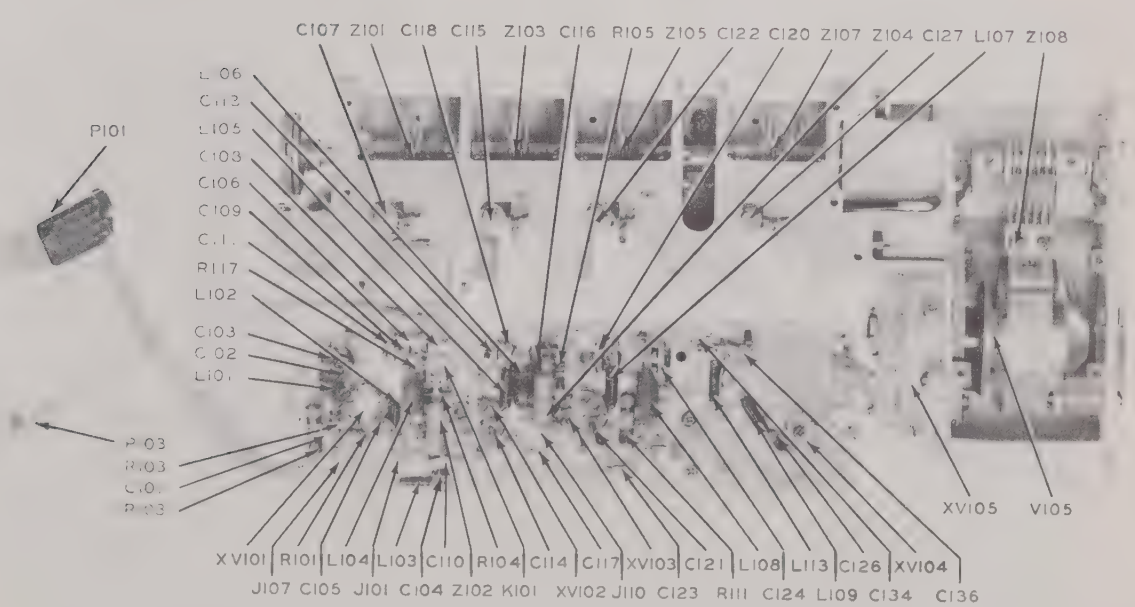



Figure 66. Rf and Power Amplifier, tube chassis removed

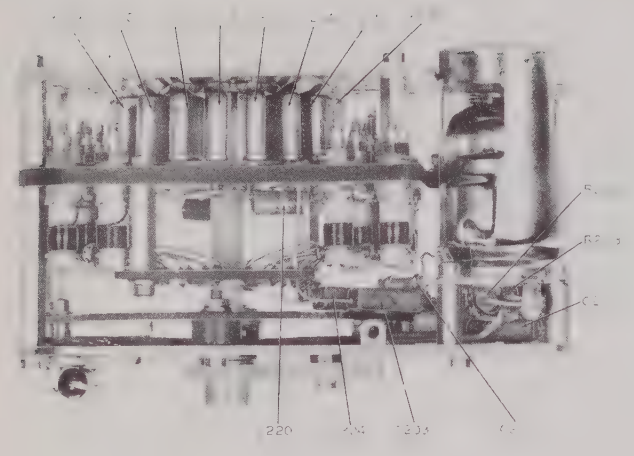


Figure 67. Master Oscillator, top view, cover removed

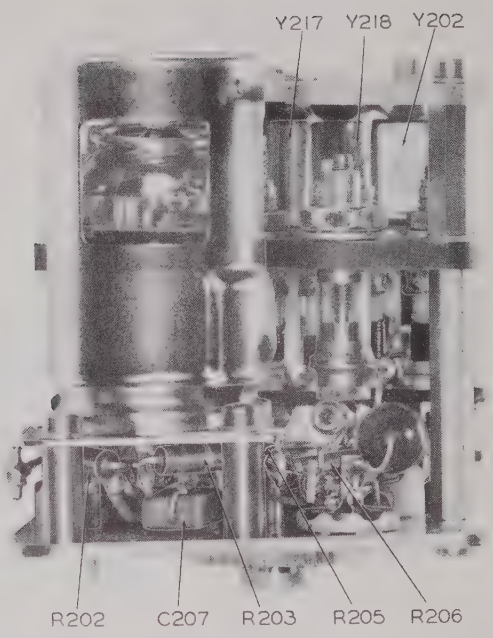



Figure 68. Master Oscillator, right side view, cover removed

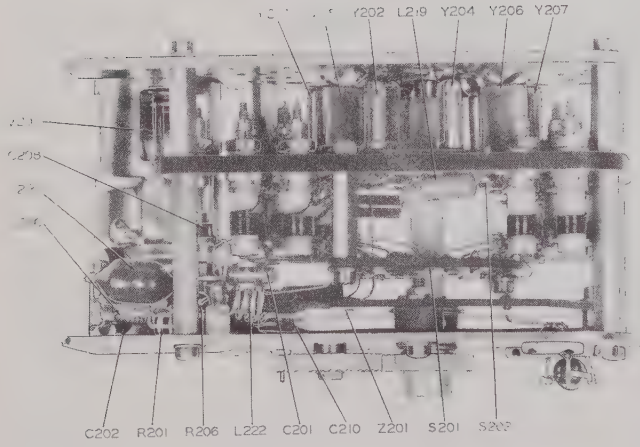



Figure 69. Master Oscillator, bottom view, cover removed

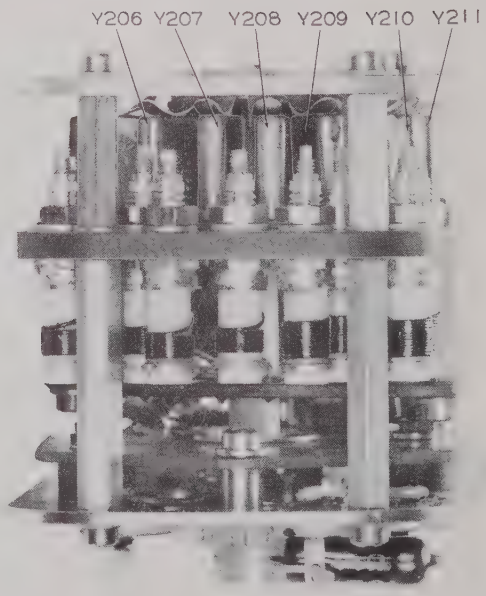



Figure 70. Master Oscillator, left side view, cover removed

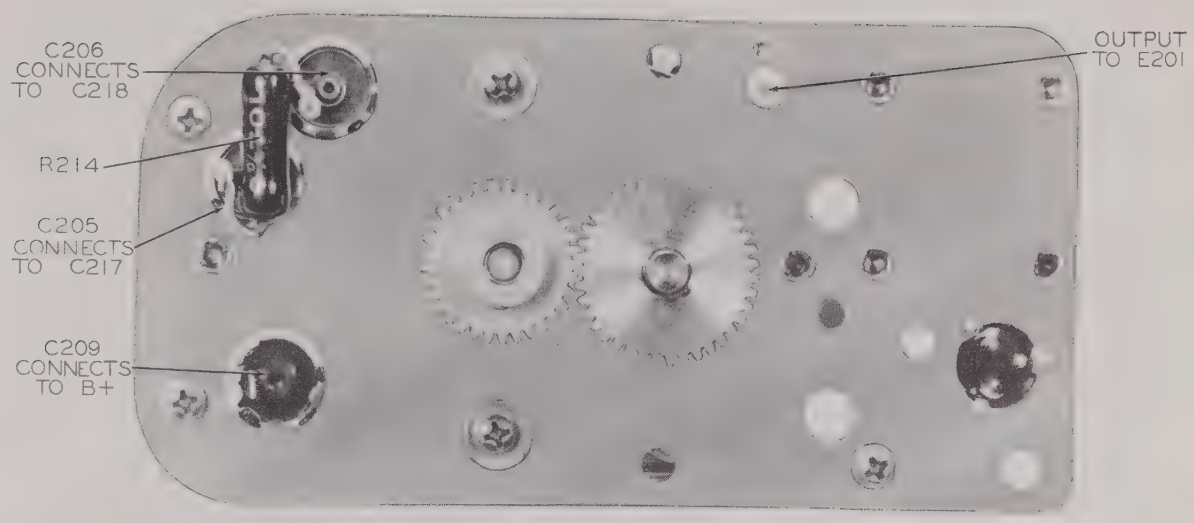



Figure 71. Master Oscillator, front view

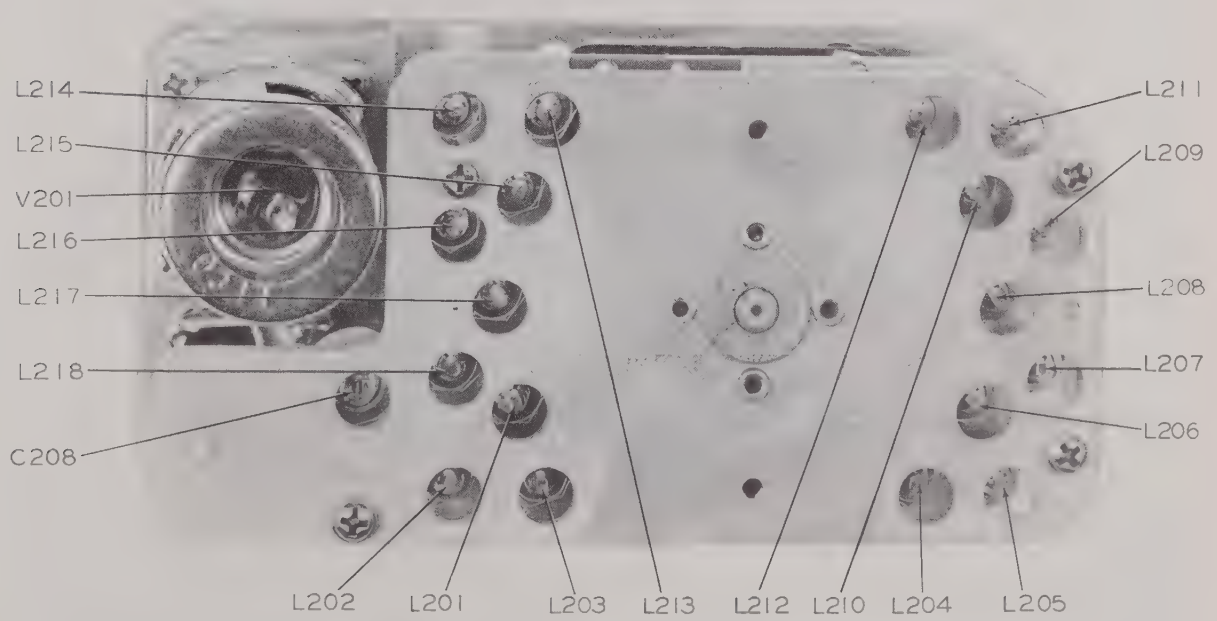



Figure 72. Master Oscillator, rear view, cover removed

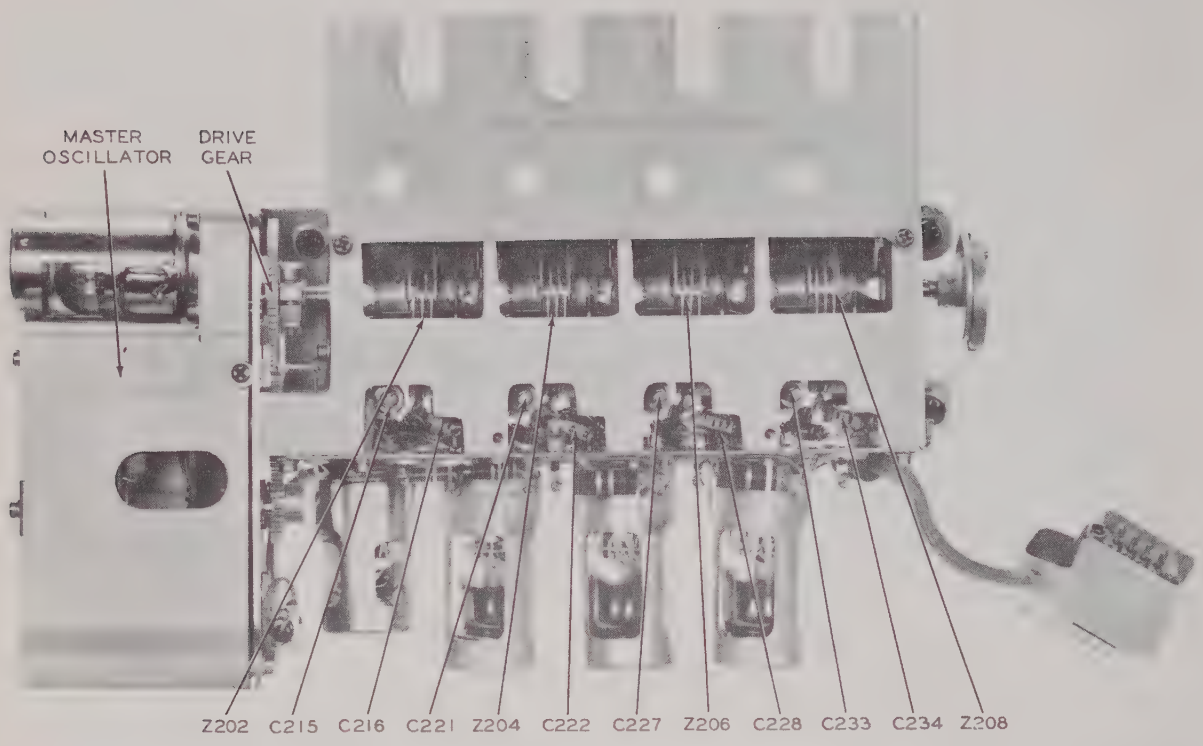



Figure 73. Uhf Injection System, top view

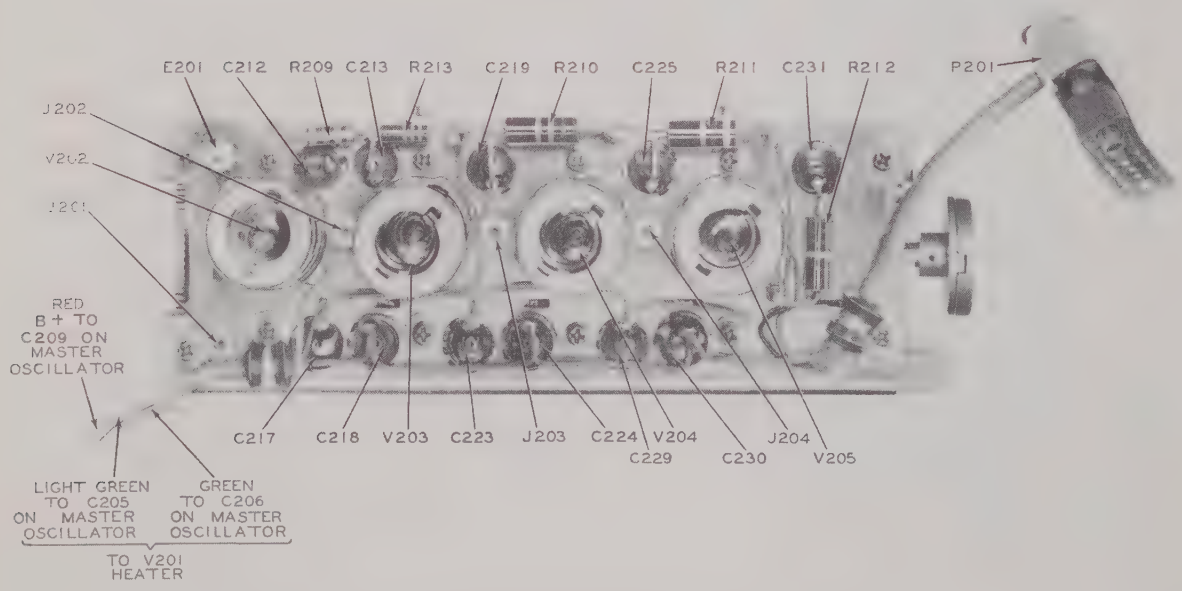



Figure 74. Frequency Multiplier Amplifier, left side view

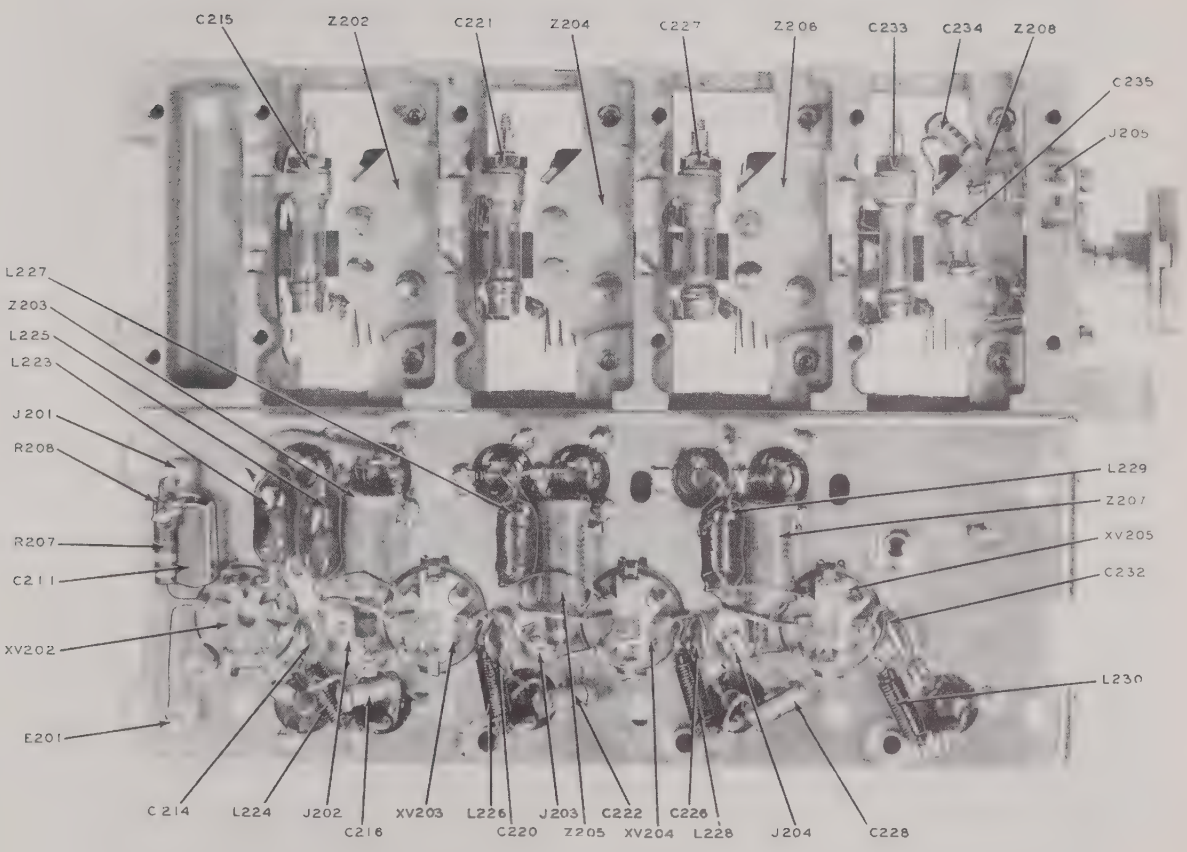



Figure 75. Frequency Multiplier Amplifier, left side view, tube chassis folded down

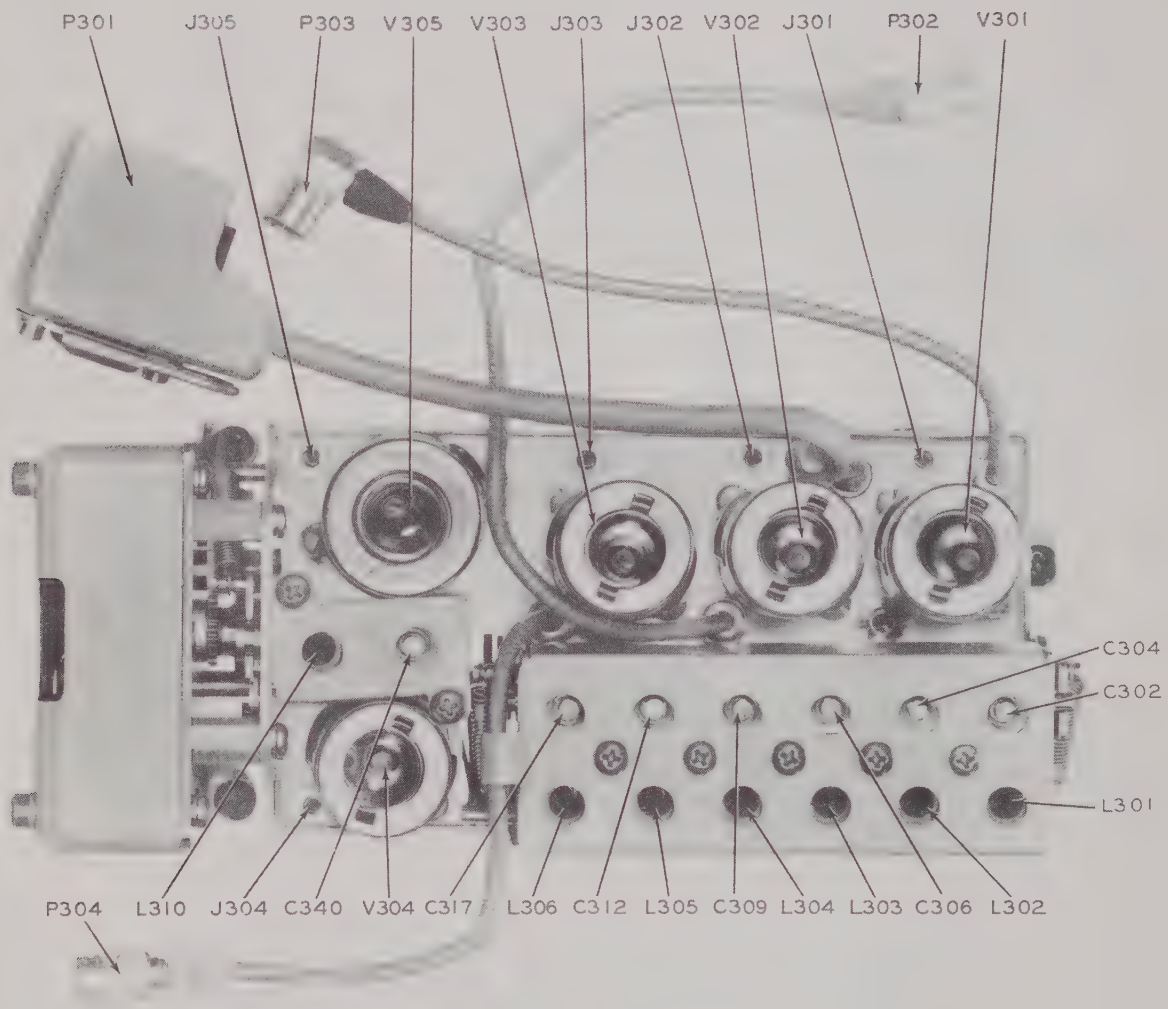



Figure 76. 20.0 to 29.9 mc If. Amplifier, top view

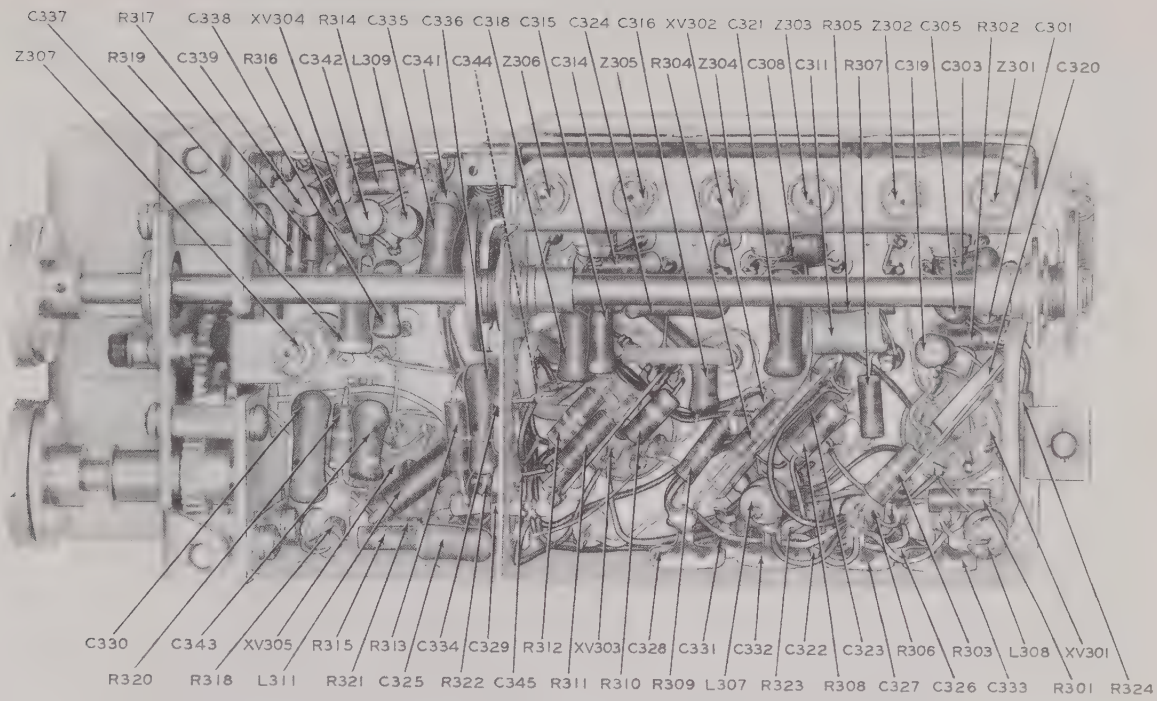



Figure 77. 20.0 to 29.9 mc If. Amplifier, bottom view

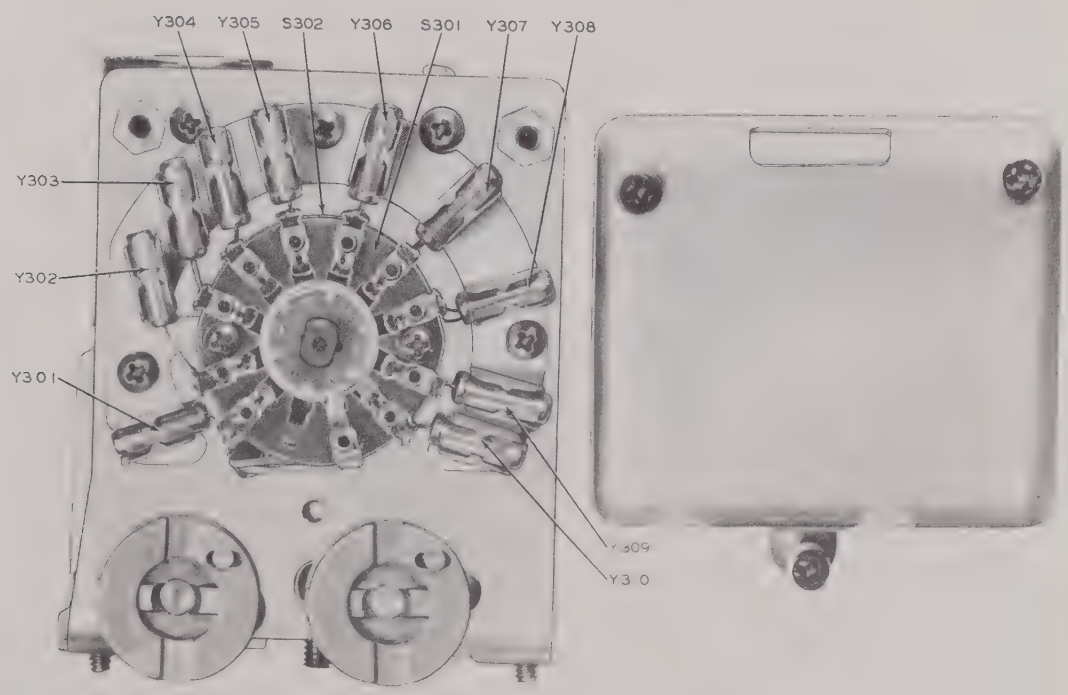



Figure 78. 20.0 to 29.9 mc If. Amplifier, front view, crystal cover removed

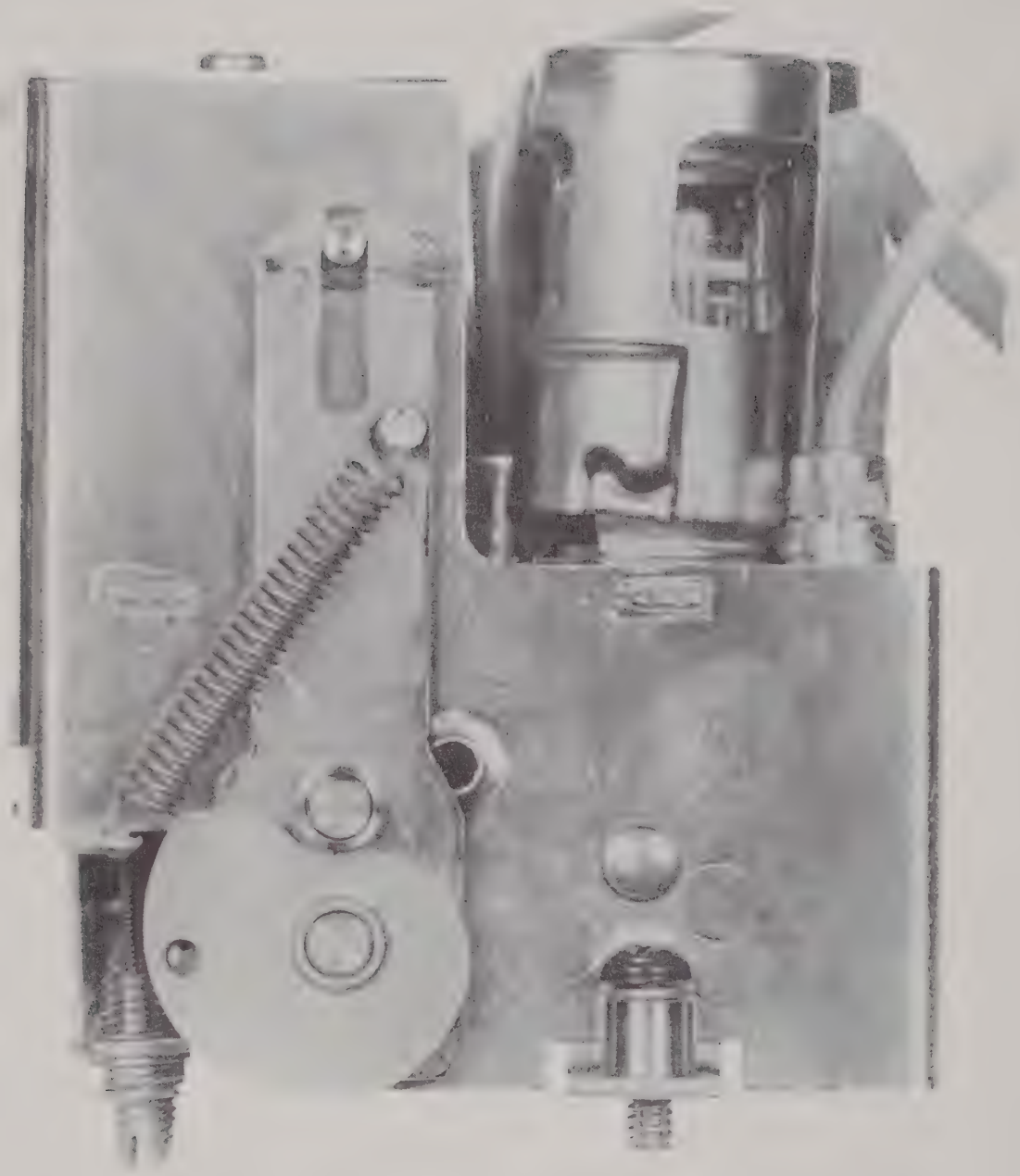


Figure 79. 20.0 to 29.9 mc If. Amplifier, rear view

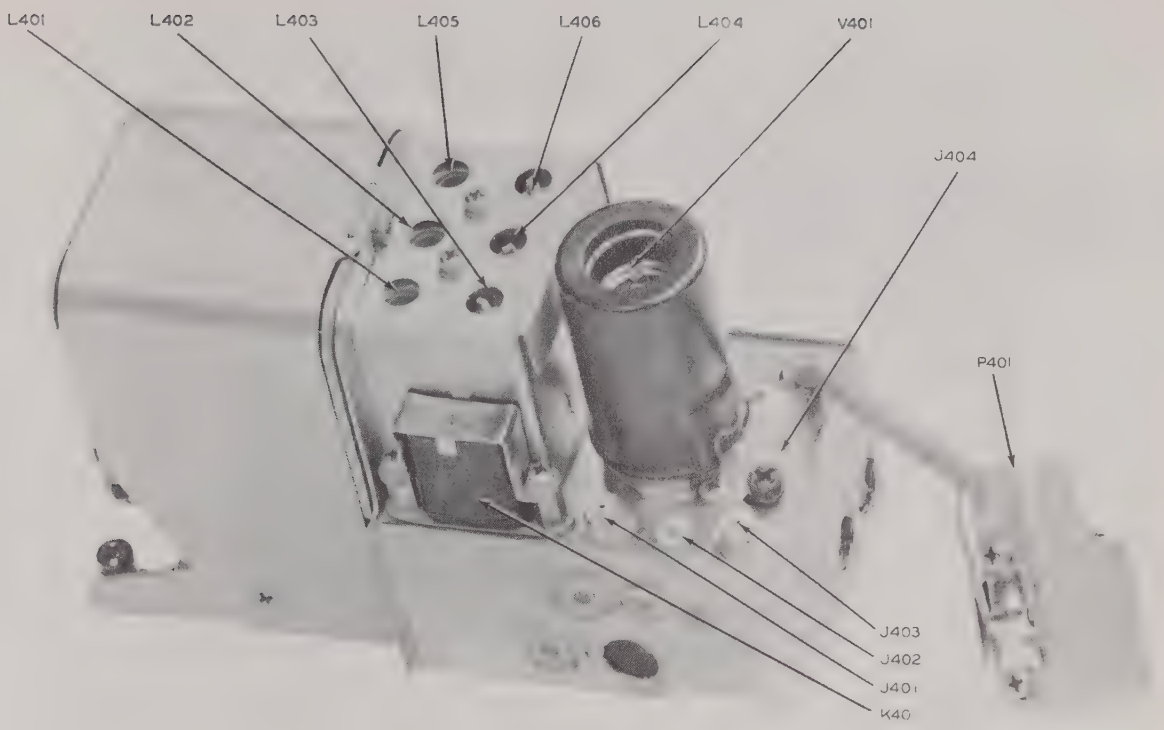



Figure 80. 3.0 to 3.9 mc If. Amplifier, top view

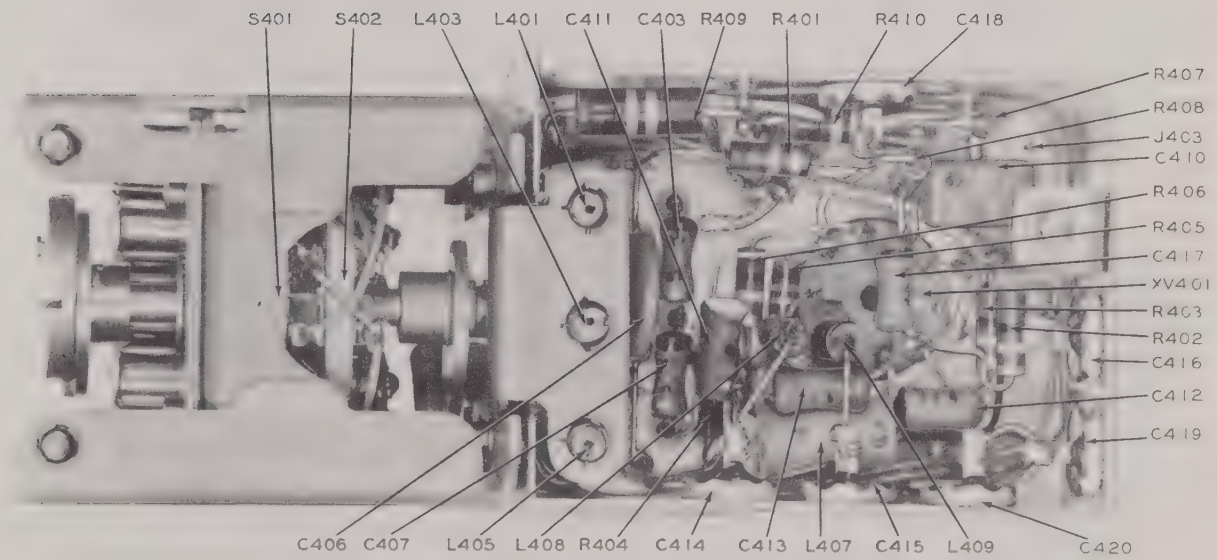



Figure 81. 3.0 to 3.9 mc If. Amplifier, bottom view, crystal cover removed

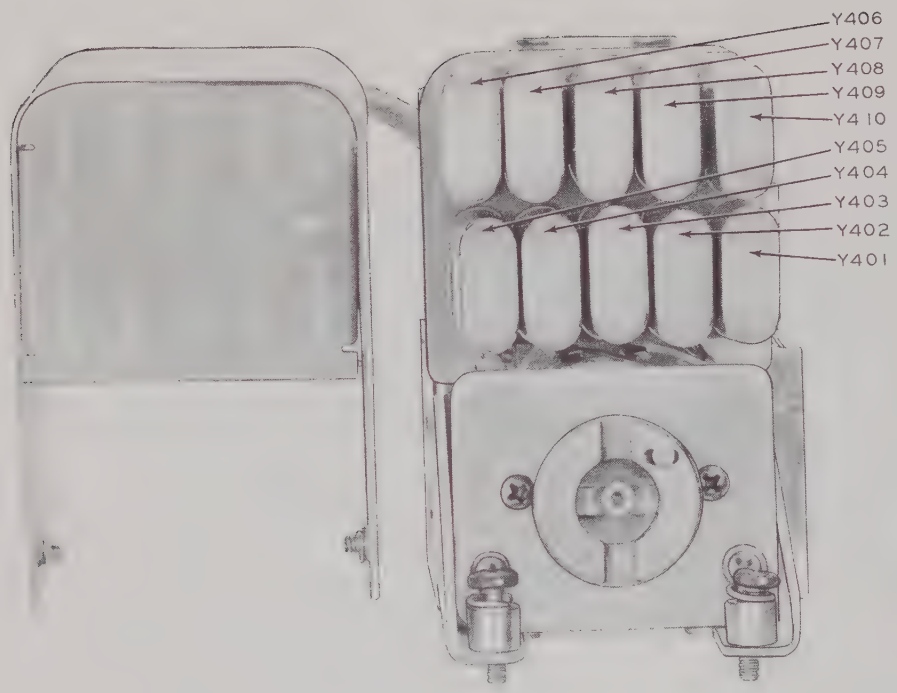



Figure 82. 3.0 to 3.9 mc If. Amplifier, front view, crystal cover removed

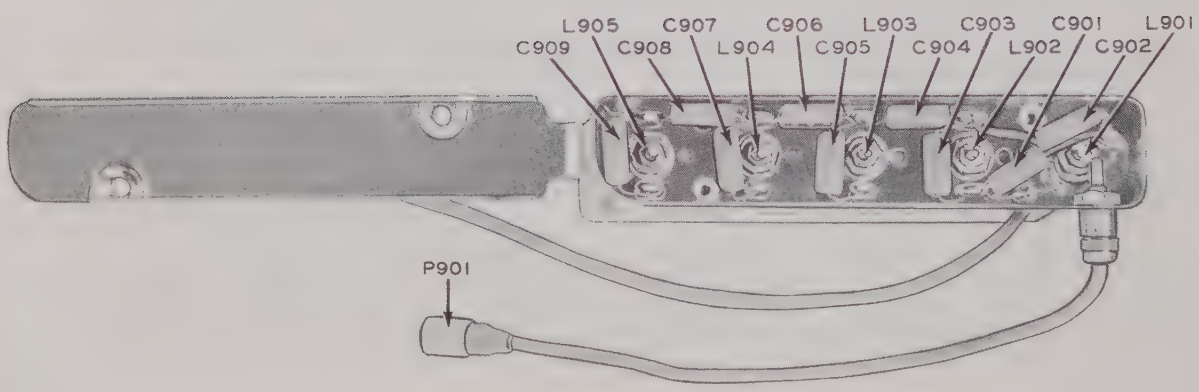



Figure 83. 500 kc If. Filter, left side view, cover removed

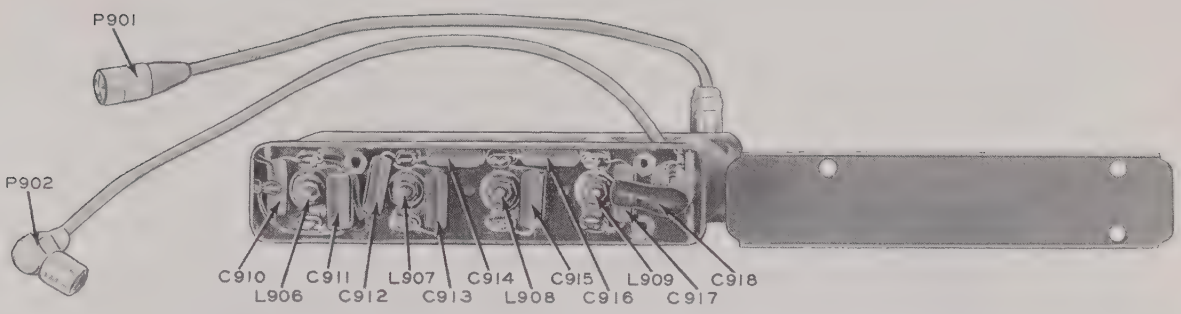



Figure 84. 500 kc If. Filter, right side view, cover removed

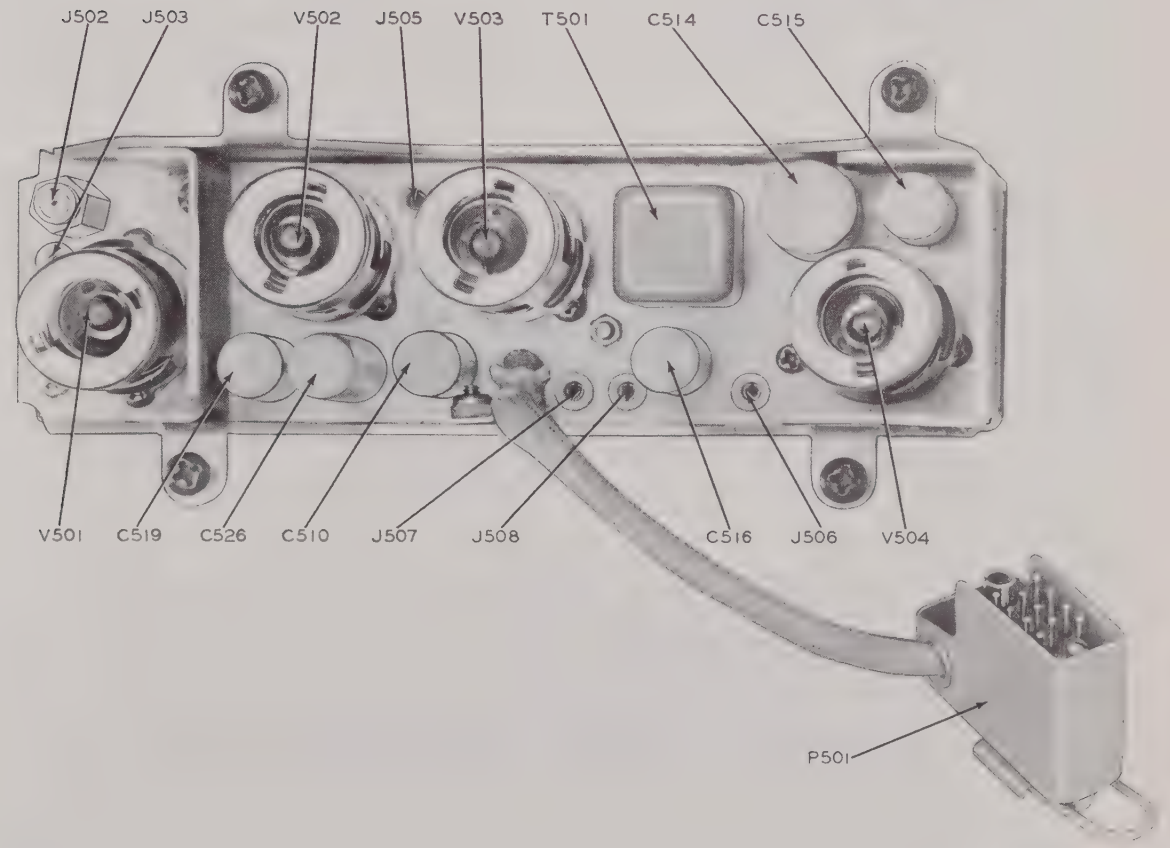



Figure 85. 500 kc If. Amplifier, top view

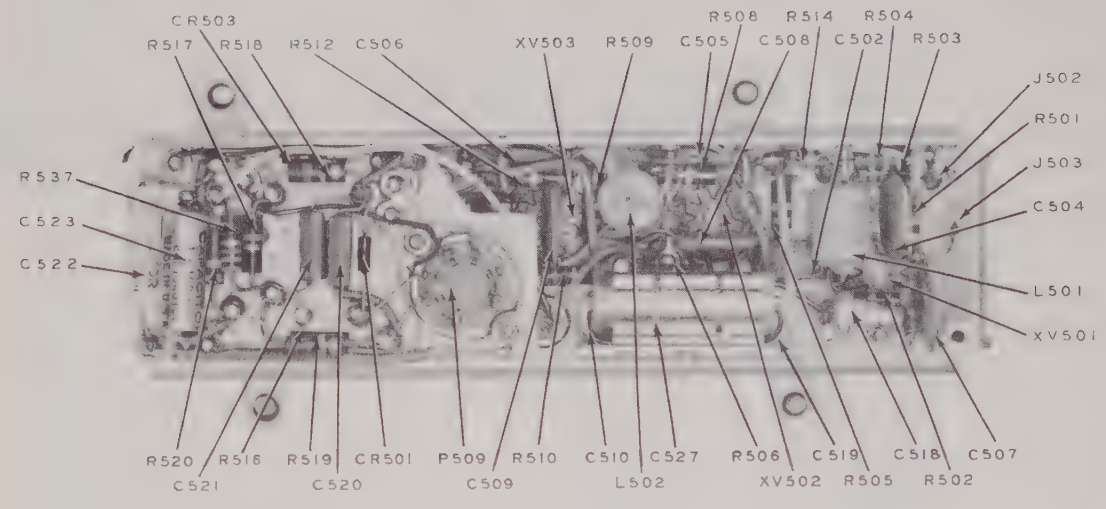



Figure 86. 500 kc If. Amplifier, bottom view, cover removed

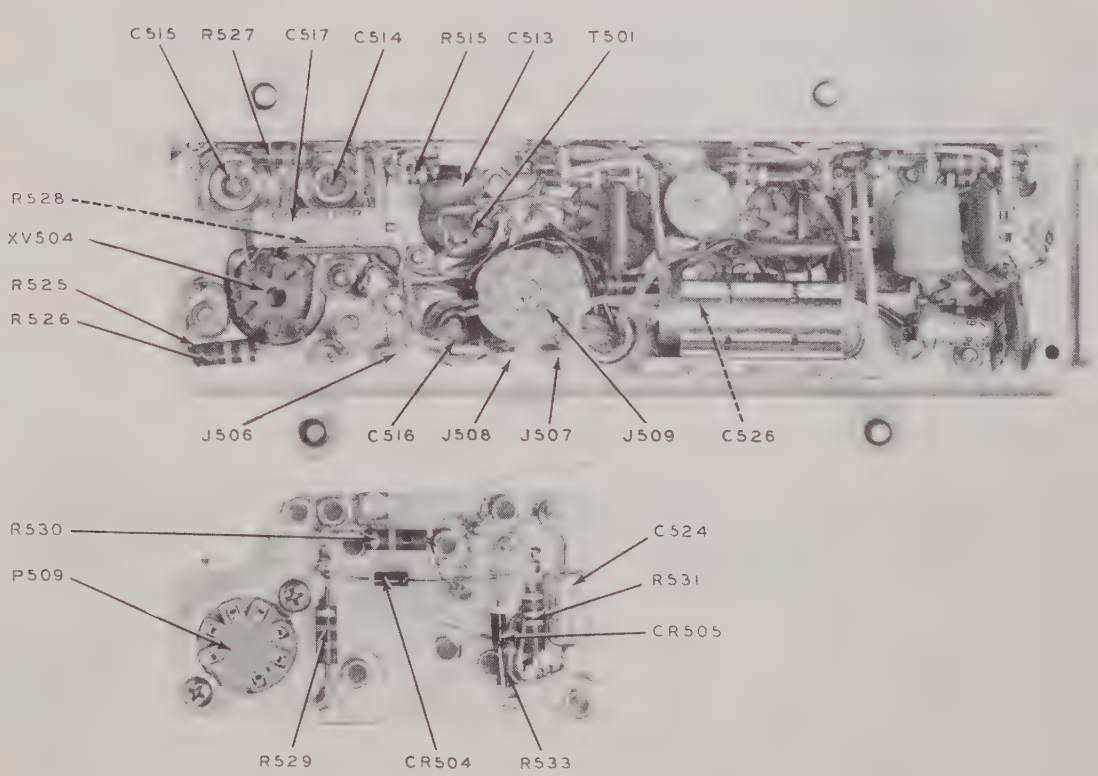



Figure 87. 500 kc If. Amplifier and Detector Board, bottom view

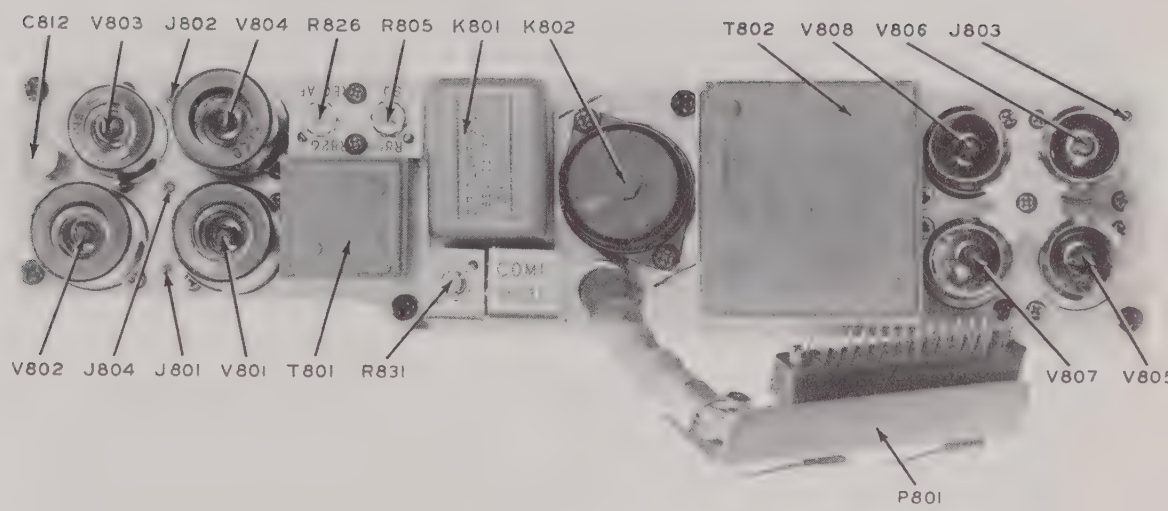



Figure 88. Audio Amplifier and Modulator, top view

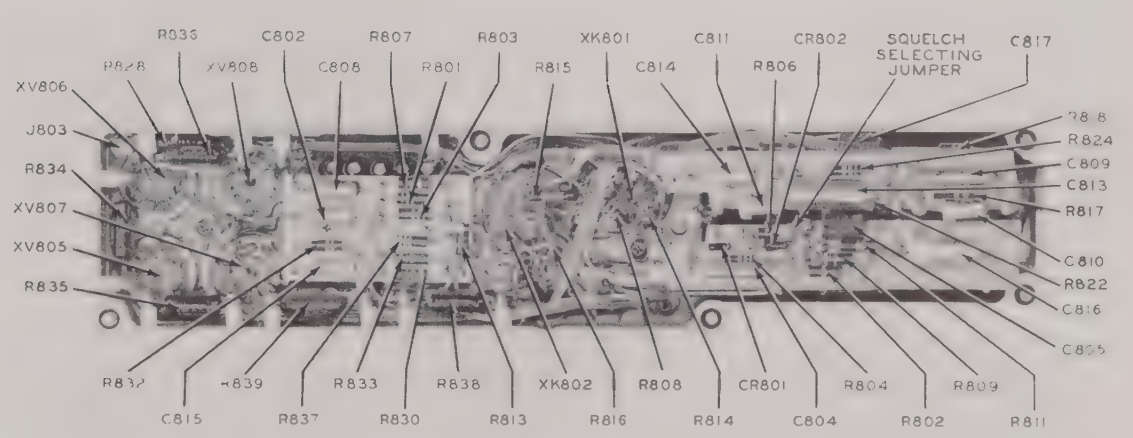



Figure 89. Audio Amplifier and Modulator, bottom view, inner sides of terminal boards

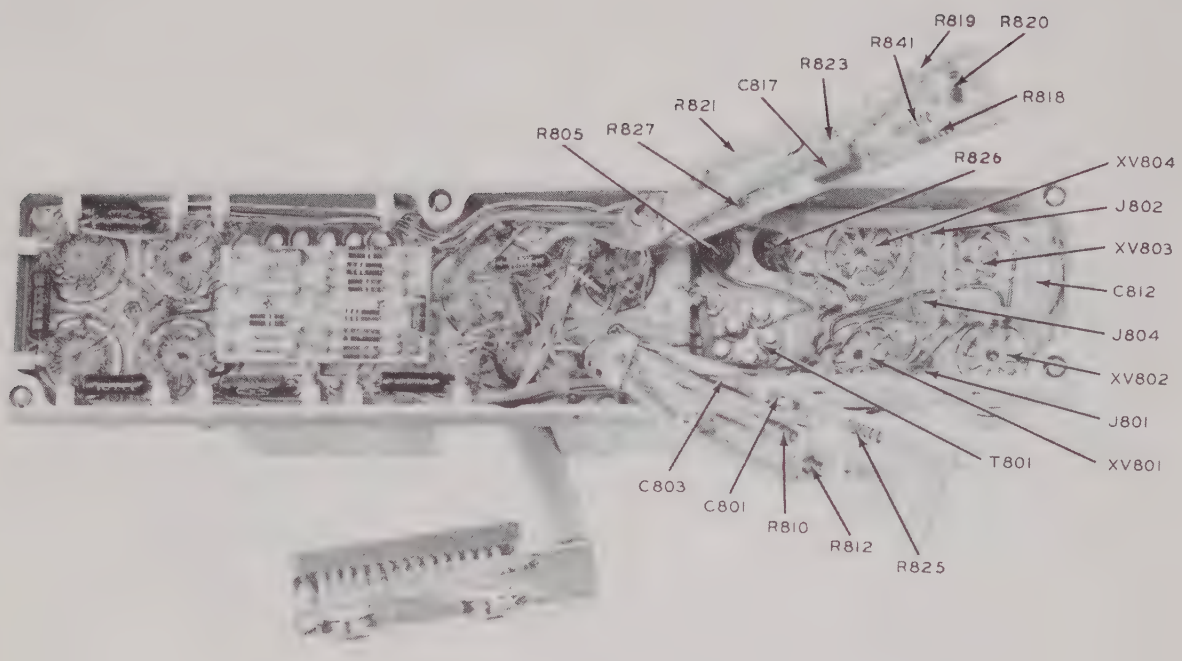



Figure 90. Audio Amplifier and Modulator, bottom view, outer sides of terminal boards shown

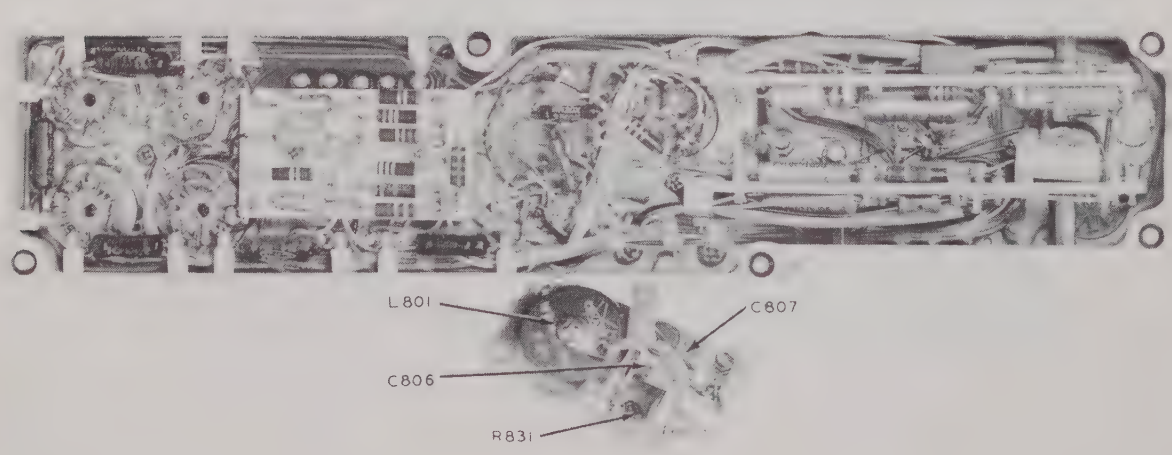



Figure 91. Audio Amplifier and Modulator, bottom view, R831 bracket exposed

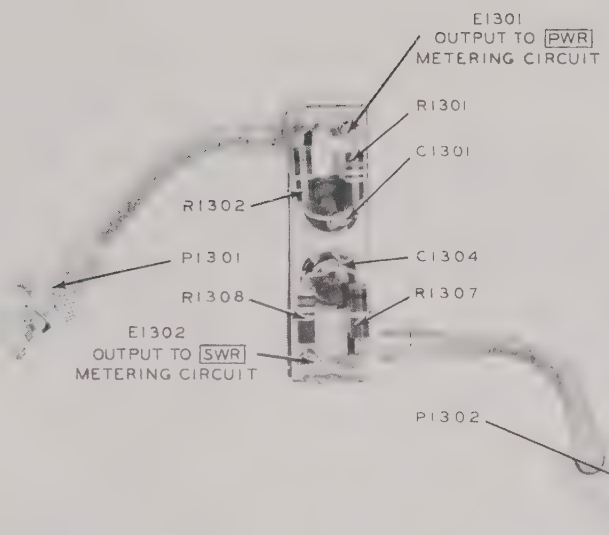



Figure 92. Directional Coupler

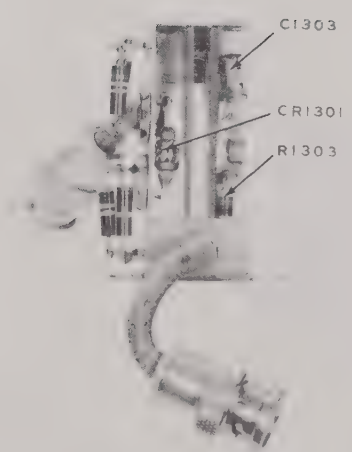



Figure 93. Directional Coupler, rear view, cover removed

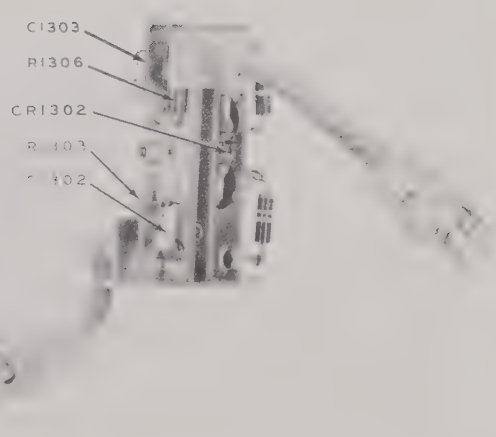



Figure 94. Directional Coupler, front oblique view, cover removed

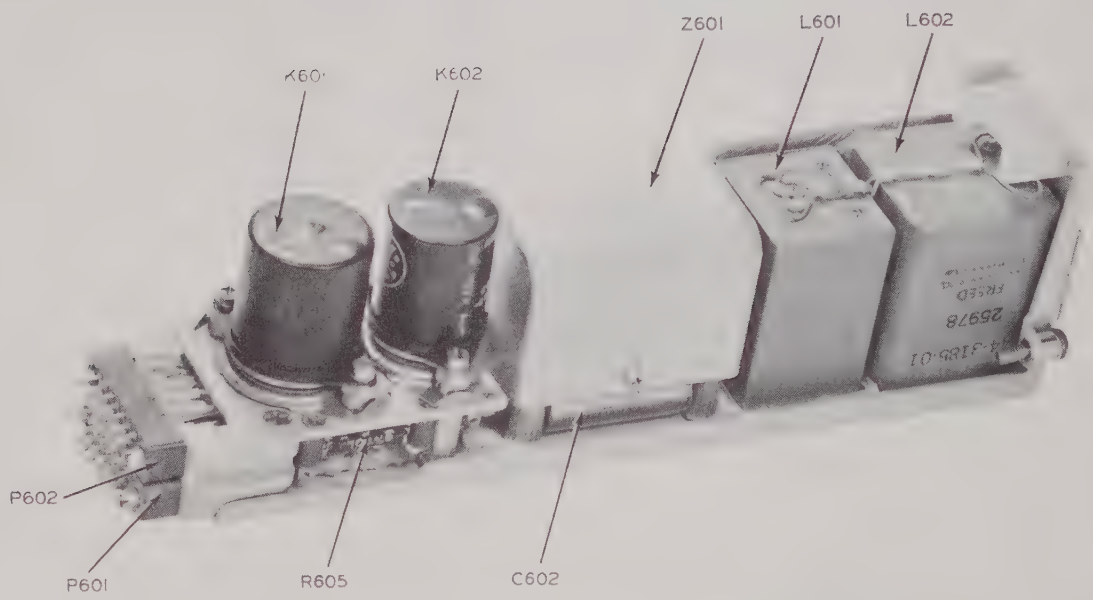



**Figure 95. Relay and Filter Unit**
**top-front view**

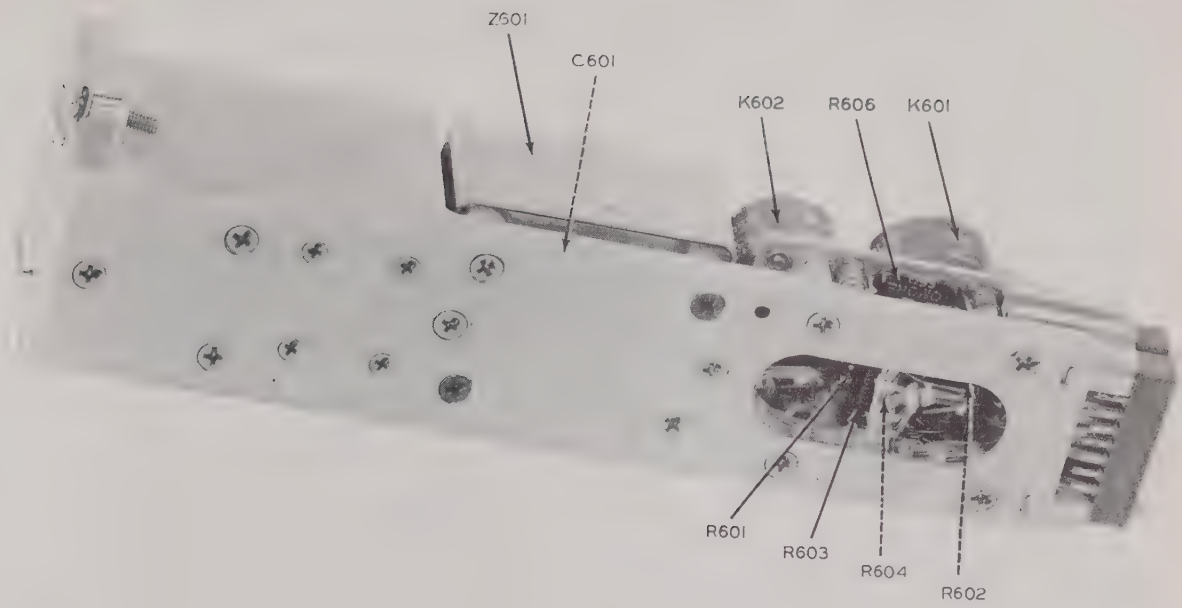



Figure 96. Relay and Filter Unit, bottom view

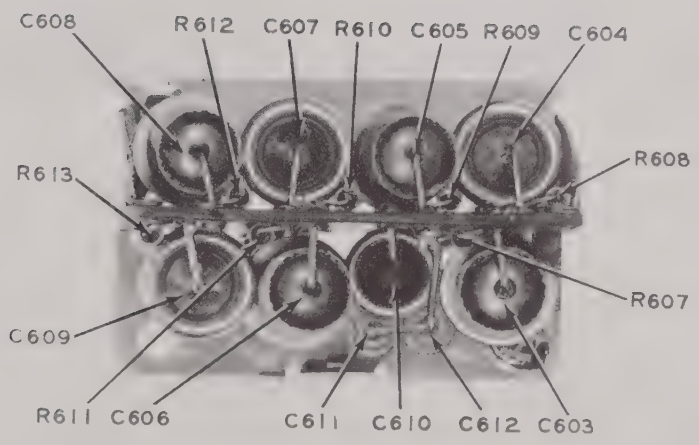



Figure 97. B+ Filter Z601, top view, cover removed

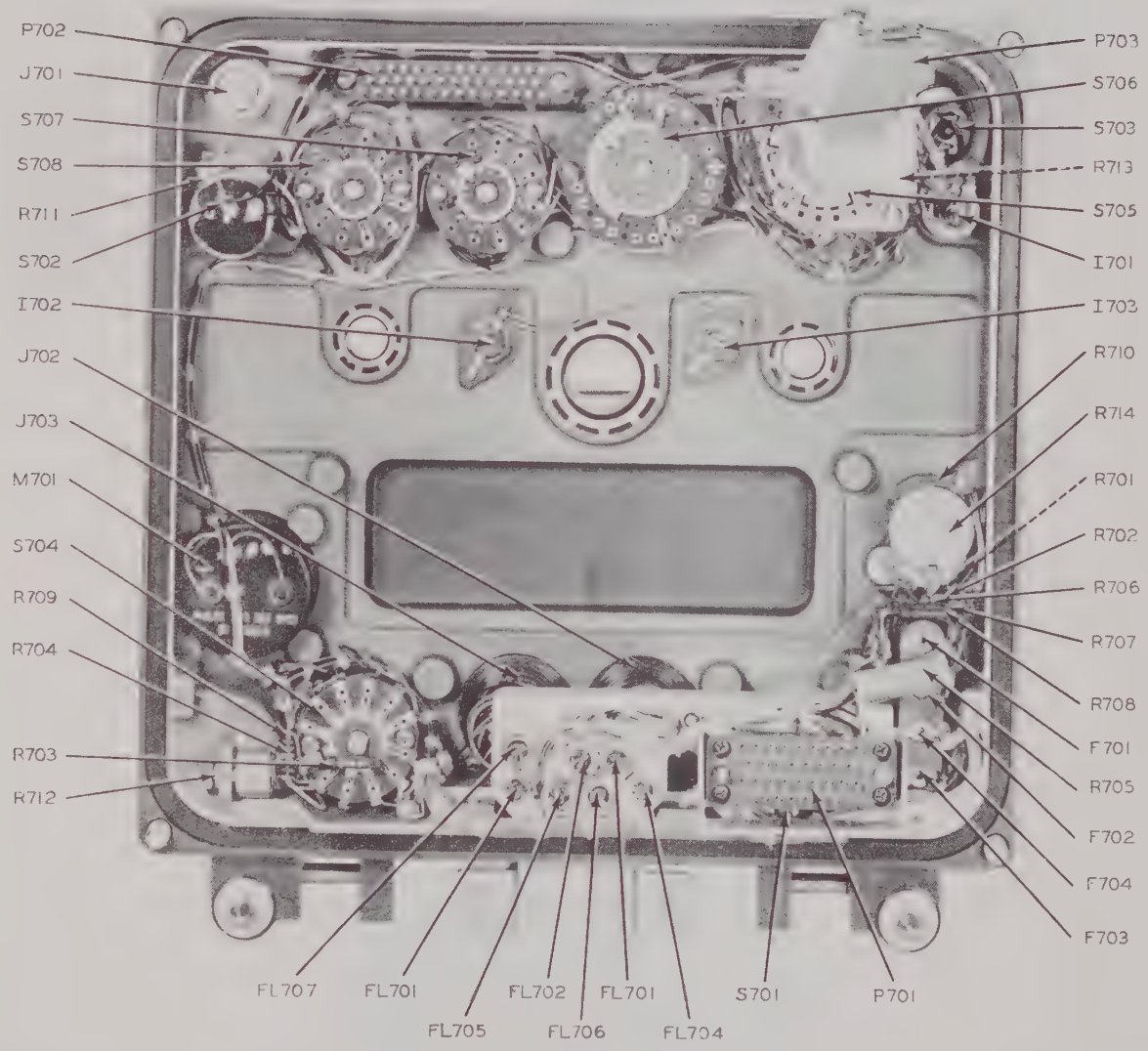



**Figure 98. Front Panel, rear view**

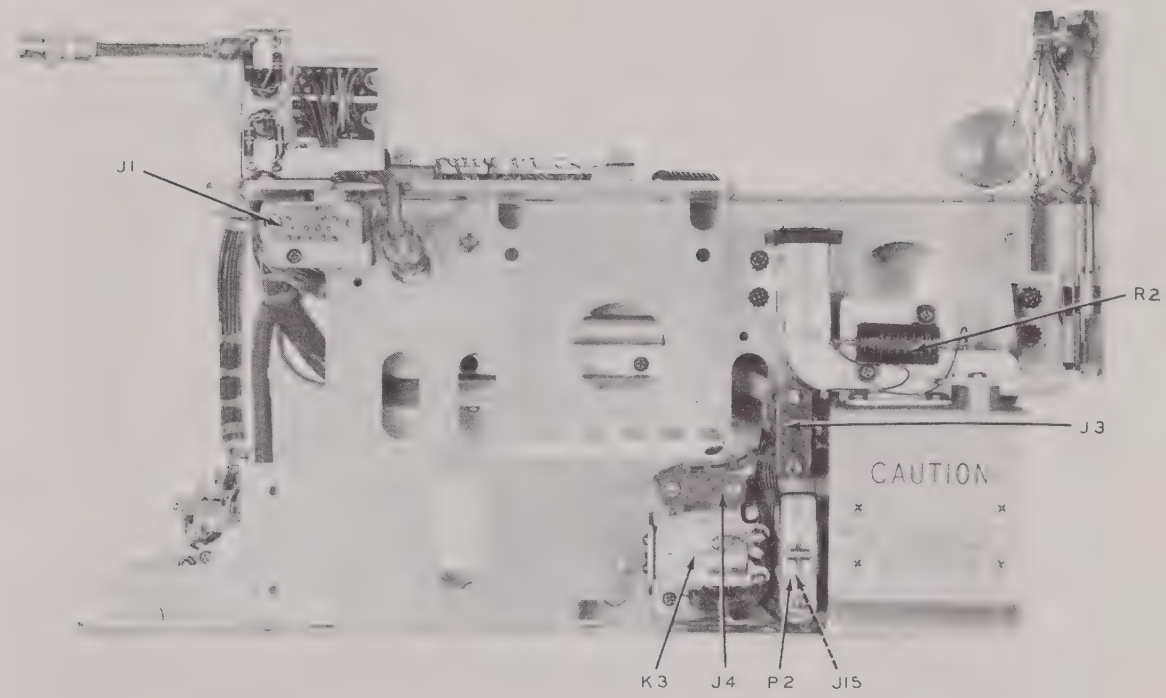



Figure 99. Main Frame, right side view

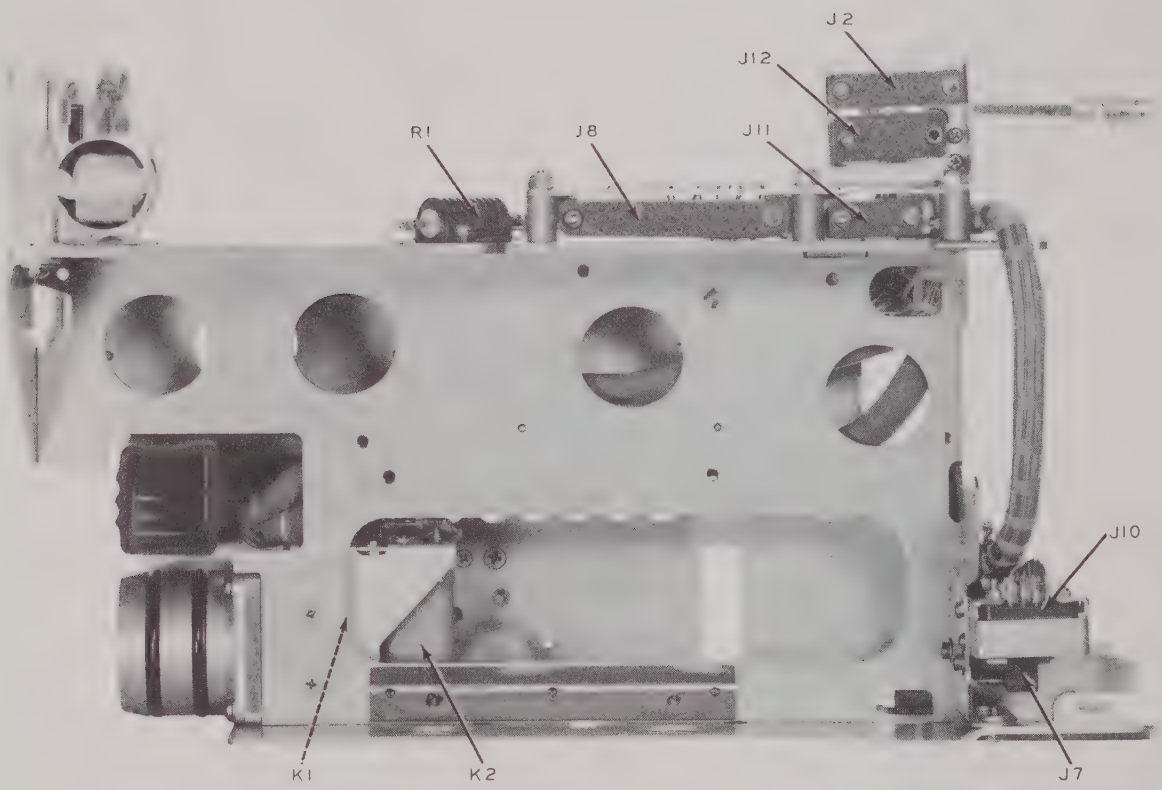



Figure 100. Main Frame, left side view

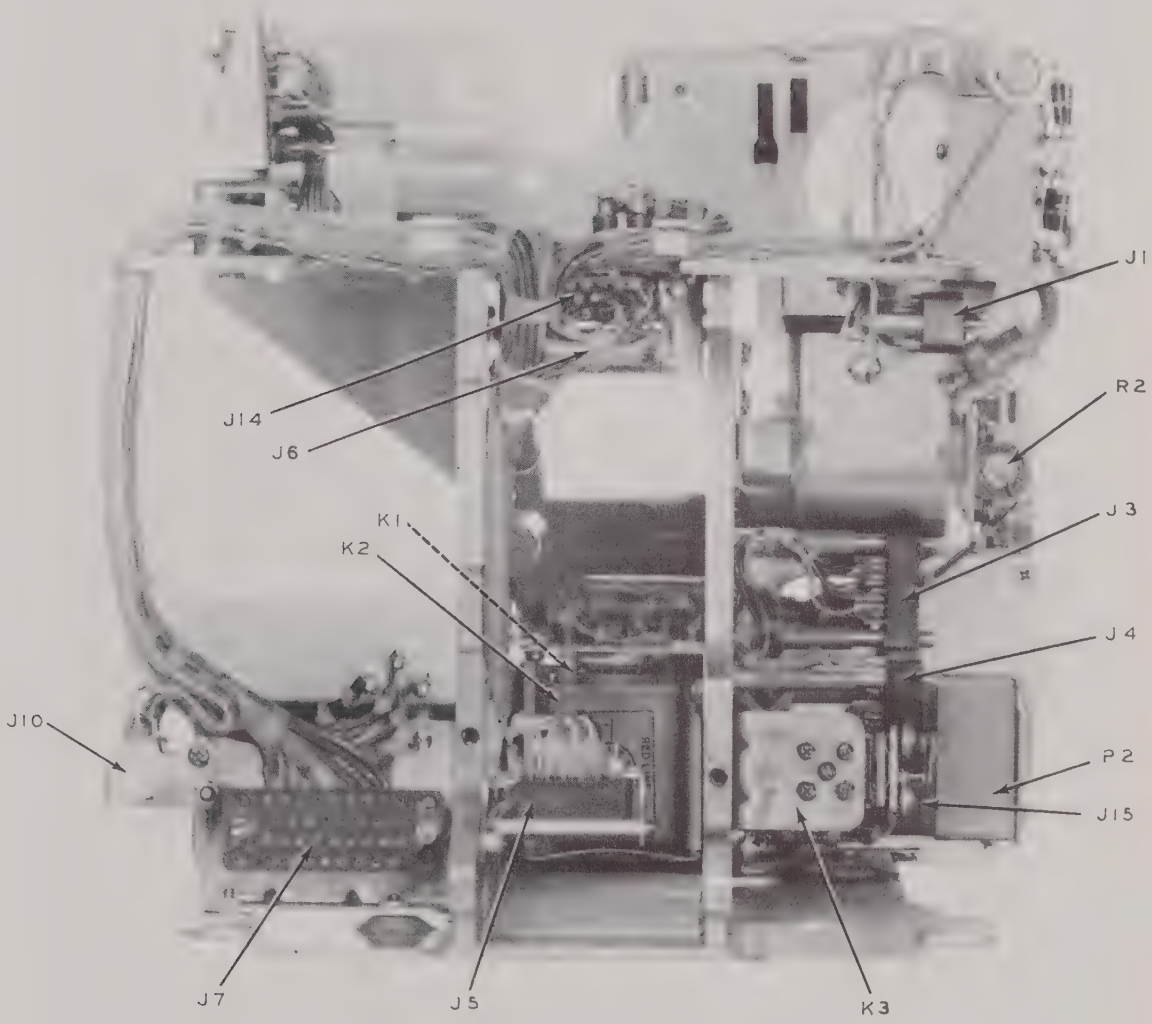



Figure 101. Main Frame, front view

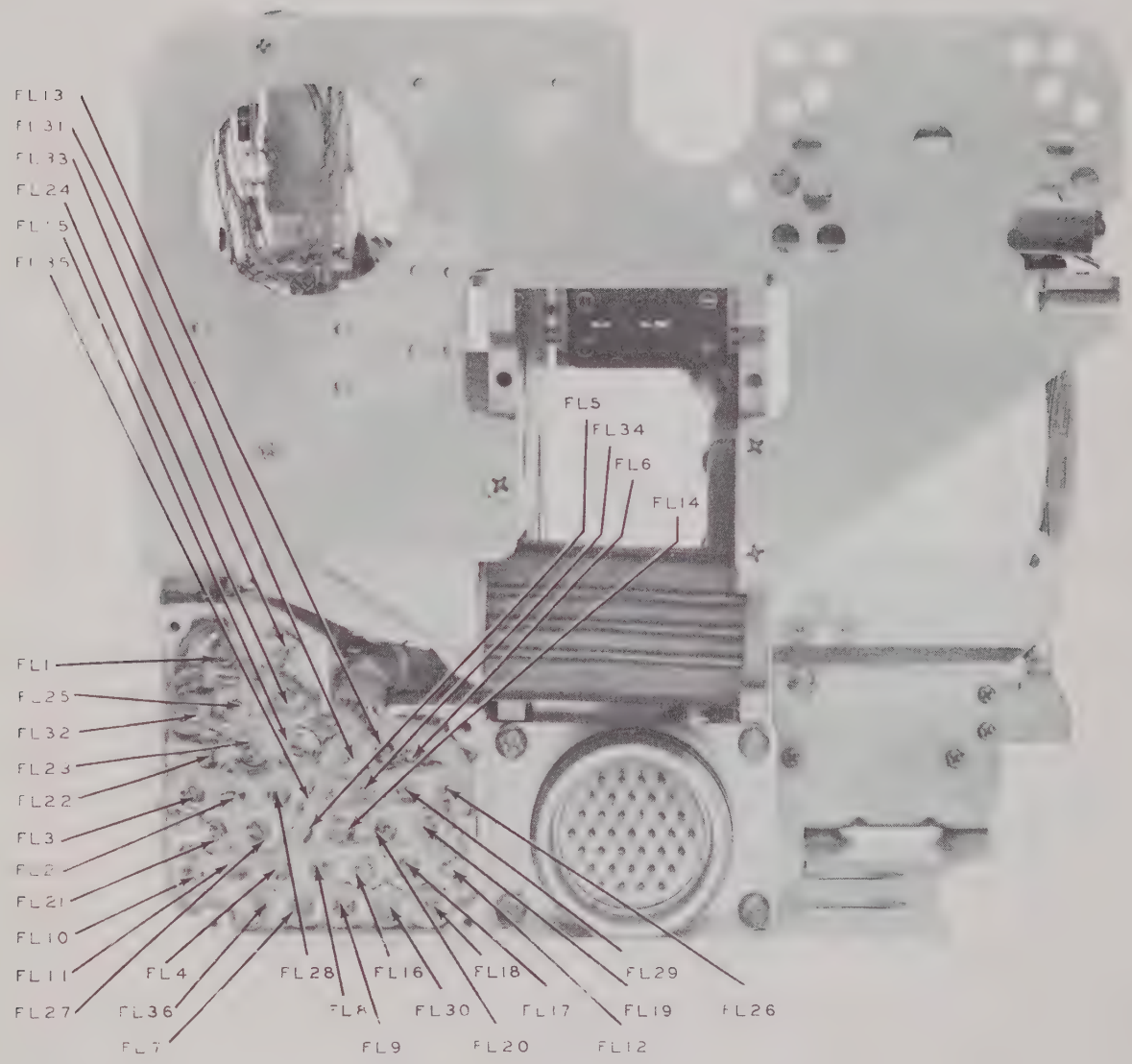



Figure 102. Main Frame, rear view, filter cover removed

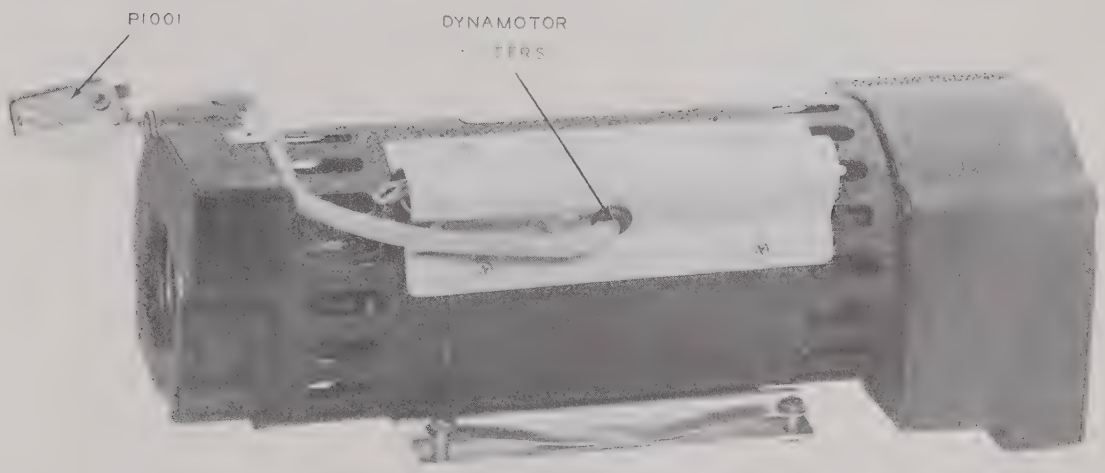



Figure 103. Dynamotor

# CHAPTER 8

# SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

## Section I. SHIPMENT AND LIMITED STORAGE

### 93. Disassembly

Use the following instructions as a guide for preparing Radio Set AN/VRC-24 for shipment and storage.

a. Remove all outside leads such as input signal lines and cabling to the receiver-transmitter.

b. Disconnect all cabling to the mounting and remote control(s).

c. Remove the receiver-transmitter from the mounting.

d. Remove the mounting and remote control(s) from the vehicle.

### 94. Repacking for Shipment or Limited Storage

The procedure for repacking the radio set for shipment or limited storage depends on the materials available and the conditions under which the equipment is to be shipped or stored. The packaging information given in paragraph 5 will be helpful.

## Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

### 95. General

Use the demolition procedures given in paragraph 96 to prevent the enemy from using or salvaging this equipment. Demolition of the equipment will be carried out only upon the order of the commander.

### 96. Methods of Destruction

a. Smash. Smash the meters, controls, tubes, coils, switches, capacitors, transformers, relays, headsets and microphones, with sledges, axes, handaxes, pickaxes, hammers, crowbars, or other heavy tools.

b. Cut. Cut cords, cables, and wiring, using axes, handaxes, or machetes.

c. Burn. Burn cords, resistors, capacitors, coils, crystals, wiring, and instruction books, using gasoline, kerosene, oil, flame throwers, or incendiary grenades.

d. Bend. Bend panels, cabinets, and chassis.

e. Explosives. If explosives are necessary, use firearms, grenades, or TNT.

f. Disposal. Bury or scatter the destroyed parts in slit trenches, fox holes, or other holes, or throw them into streams.

g. Destroy. Destroy everything.

## APPENDIX 1

## IDENTIFICATION TABLE OF PARTS

1. Requisitioning Parts

The fact that a part is listed in this table is not sufficient basis for requisitioning the item. Requisitions must cite an authorized basis, such as a specific T/O&E, T/A, SIG 7&8, list of allowances of expendable material, or another authorized supply basis. For an index of available supply manuals in the Signal portion of the Department of the Army Supply Manual, see the latest issue of SIG 1, Introduction and Index.

2. Identification of Parts for Radio Set AN/VRC-24(XC-2)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| CR1 | RECTIFIER, METALLIC: selenium; input 30 vdc; output 11.8 vdc; Fansteel Metallur type TEX 347WE. | 044 0417 97 | |
| E1 | TERMINAL, STUD: 1/4 in. across flats, 0.680 in. lg over-all; Whitso, Inc. | 306 0234 00 | 3Z12101-47 |
| E2 | TERMINAL, STUD: same as E1. | 306 0234 00 | 3Z12101-47 |
| E3 | TERMINAL, STUD: 1/4 in. across flats, 0.7882 in. lg over-all; Whitso, Inc. | 306 0233 00 | 3Z12101-20.2 |
| E4 | TERMINAL, STUD: same as E3. | 306 0233 00 | 3Z12101-20.2 |
| E5 | TERMINAL, STUD: same as E3. | 306 0233 00 | 3Z12101-20.2 |
| E6 | TERMINAL, STUD: same as E1. | 306 0234 00 | 3Z12101-47 |
| E7 | TERMINAL, STUD: same as E1. | 306 0234 00 | 3Z12101-47 |
| E8 | TERMINAL, lug: sq tongue end; 3/16 in. dia by 13/32 in. lg; Cambridge Therm. type 1969. | 306 0207 00 | |
| E9 | TERMINAL, lug: same as E8. | 306 0207 00 | |
| E10 | TERMINAL, lug: same as E8. | 306 0207 00 | |
| E11 | TERMINAL, lug: same as E8. | 306 0207 00 | |
| E12 | TERMINAL, lug: rd, tongue end; phosphor bronze, tinned finish; used w/ no. 4 screw; 5/16 w by 41/64 in. lg; Shakeproof. | 304 0317 00 | |
| E13 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E14 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E15 | TERMINAL, lug: same as E12. | 304 0317 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| E16 | BRACKET: grounding; U shape; commercial brass, bright alloy plate; 0.025 in. thk by 0.750 in. w by 3.484 in. lg; two 0.156 in. dia holes spaced 3.094 in. c to c. | 594 9413 003 | |
| E17 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E18 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E19 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E20 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E21 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E22 | TERMINAL, STUD: teflon; insulated; 0.218 in. dia by 0.489 in. lg over-all; Sealectro Corp p/n RST-1. | 306 0322 00 | |
| E23 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| FL1 | SUPPRESSOR, ELECTRICAL NOISE: capacitor and iron core coil type; 0.562 in. dia by 2.249 in. lg over-all; 15 amp, 100 vdc; Sprague type 103P. | 044 0164 98 | |
| FL2 | FILTER, RF: pi section; c/o brass shell, 22 uh coil and two 1000 uuf capacitors. | 593 0477 002 | |
| FL3 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL4 | FILTER, RF: pi section; c/o brass shell, 10 uh coil and two 1000 uuf capacitors. | 593 0478 002 | |
| FL5 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL6 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL7 | FILTER, RF: same as FL4. | 593 0478 002 | |
| FL8 | FILTER, RF: same as FL4. | 593 0478 002 | |
| FL9 | FILTER, RF: same as FL4. | 593 0478 002 | |
| FL10 | FILTER, RF: same as FL4. | 593 0478 002 | |
| FL11 | FILTER, RF: same as FL4. | 593 0478 002 | |
| FL12 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL13 | FILTER, RF: same as FL4. | 593 0478 002 | |
| FL14 | FILTER, RF: same as FL2. | 593 0477 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| FL15 | CAPACITOR, FIXED, PAPER, DIELECTRIC: 100 vdc; 220,000 uuf ±20%; 0.400 in. dia by 2.249 in. lg; Sprague type no. 103P. | 241 0086 00 | |
| FL16 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL17 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL18 | FILTER, RF: same as FL4. | 593 0478 002 | |
| FL19 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL20 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL21 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL22 | CAPACITOR, FIXED, PAPER, DIELECTRIC: same as FL15. | 241 0086 00 | |
| FL23 | CAPACITOR, FIXED, PAPER, DIELECTRIC: same as FL15. | 241 0086 00 | |
| FL24 | CAPACITOR, FIXED, PAPER, DIELECTRIC: same as FL15. | 241 0086 00 | |
| FL25 | CAPACITOR, FIXED, PAPER, DIELECTRIC: same as FL15. | 241 0086 00 | |
| FL26 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL27 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL28 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL29 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL30 | FILTER, RF: same as FL4. | 593 0478 002 | |
| FL31 | FILTER, RF: same as FL4. | 593 0478 002 | |
| FL32 | SUPPRESSOR, electrical noise: dust type feedthrough; 0.047 uf; 400 v; Sprague type 103P. | 241 0092 00 | |
| FL33 | SUPPRESSOR, electrical noise: same as FL32. | 241 0092 00 | |
| FL34 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL35 | FILTER, RF: same as FL2. | 593 0477 002 | |
| FL36 | CAPACITOR, FIXED, PAPER, DIELECTRIC: same as FL15. | 241 0086 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| J1 | CONNECTOR, receptacle: 18 round female cont; straight type; 3 amps, 300 v rms max; Winchester Electric p/n MRE18S-G. | 372 1049 00 | |
| J2 | CONNECTOR, receptacle: 11 round female cont; straight type; 5 amp, 300 v rms max; Dejur Amsco type 20, #11-20S. | 372 1529 00 | |
| J3 | CONNECTOR, receptacle: 14 female cont; straight type; 5 amps, 300 v rms max; Amphenol #26-174. | 372 1043 00 | 2Z3075-56 |
| J4 | CONNECTOR, receptacle: same as J2. | 372 1529 00 | |
| J5 | CONNECTOR, receptacle: same as J3. | 372 1043 00 | 2Z3075-56 |
| J6 | CONNECTOR, receptacle: 20 round female cont; straight type; 5 amp, 300 v rms max; Winchester Elect #MRE 20S-G. | 372 1528 00 | |
| J7 | CONNECTOR, receptacle: 34 round female cont; straight type; 5 amp, 300 v rms max; Winchester Electric #MRE 34S-G. | 372 1047 00 | |
| J8 | CONNECTOR, receptacle: 41 female cont; straight type; 5 amp, 300 v rms max; Winchester Elect #MRE 41S-G. | 372 1532 00 | |
| J10 | CONNECTOR, receptacle: same as J2. | 372 1529 00 | |
| J11 | CONNECTOR, receptacle: same as J6. | 372 1528 00 | |
| J12 | CONNECTOR, receptacle: same as J1. | 372 1049 00 | |
| J14 | CONNECTOR, receptacle: same as J6. | 372 1528 00 | |
| J15 | CONNECTOR, receptacle: same as J6. | 372 1528 00 | |
| K1 | RELAY, ARMATURE: cont arrangement 1 c. 1A; 235 ma at 300 vdc +190 vac rms superimposed; 20 ma at 150 vac rms resistance, 500 ma at 50 vdc; Rob & Myers type no. HSM. | 044 0004 974 | |
| K2 | RELAY, ARMATURE: contact arrangement 1A, 10 ma at 300 vdc; 1B, 10 ma at 125 vdc, 1B, 400 ma at 28 vdc; coil resistance 280 ohms ±10%; 28.0 vdc nom coil voltage; RBM Co. #GX8735. | 044 0005 974 | |
| K3 | RELAY, ARMATURE: contact arrangement 1X, 1A; 100 amps at 30 vdc, 20 amps at 26.4 vdc; 0.5 amp at 30 vdc, 0.250 amps at 30 vdc; Potter Brum type no. MB. | 044 0001 972 | |
| N1 | DECAL: white letters, orange background; rectangular; 1-1/4 in. by 2-1/4 in. Meyercord type G. | 280 0459 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| N2 | LABEL: warning label; decalcomania transfer; markings and border white, red background; 11/16 in. w x 1-9/16 in. lg; Meyercord type G. | 044 0287 97 | |
| N3 | PLATE, identification: aluminum; 3 in. lg by 1 in. w by 1/32 in. thk; markings, border and block, natural polish or white on dull black background. | 593 1119 002 | |
| P1 | CONNECTOR, plug: 37 male cont; straight type; 500 vac, 700 vdc at sea level; H. H. Buggie. | 593 1128 004 | |
| P2 | CONNECTOR, plug: 20 male cont; straight type; 5 amps; 2800 vac, 3900 vdc at sea level; Winchester Electronics type no. MRE. | 372 1668 00 | |
| R1 | RESISTOR, fixed: wirewound; 500,000 ohms ±3%, 25 w; Dale Products, Inc., type no. RH-25. | 747 9514 00 | |
| R2 | RESISTOR, fixed: composition; RC42GF820K; 82 ohms ±10%, 2 w; MIL-R-11. | 745 5607 00 | |
| R3 | RESISTOR, fixed: wirewound; 800 ohms ±3%; 25 w; characteristic G; Sage Electric type Silicohm "M". | 747 9524 00 | |
| W1 | CABLE-MAIN, MECHANICAL: c/o main cable (W2) brackets, posts and assorted hardware. | 593 1135 005 | |
| W2 | CABLE ASSEMBLY, special purpose: main; c/o 11 connectors, J1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 15; Fiberglas sleeving, lacing cord and wire. | 593 1109 00 | |
| W3 | CABLE ASSEMBLY: c/o one 37 cont connector, nylon lacing cord, insulation and wire. | 593 1128 004 | |
| XK1 | SOCKET, TUBE: JAN #TS103P02; 9 contact miniature; JAN spec JAN-S-28A | 220 1274 00 | |
| XK2 | SOCKET, TUBE: same as XK1. | 220 1274 00 | |
| C101 | CAPACITOR, fixed: mica; 500 mmf ±20%; 500 vdcw. | 044 0578 98 | |
| C102 | CAPACITOR, fixed: ceramic; CC30CH200J; 20 mmf ±5%; 500 vdcw. | 916 4188 00 | 3D9020-37 |
| C103 | CAPACITOR, fixed: mica; 500 mmf ±20%; 500 vdcw; Erie type #370. | 912 0667 00 | 3D9500-213 |
| C104 | CAPACITOR, fixed: mica; 1000 mmf ±20%; 500 vdcw; Erie type #370. | 912 0668 00 | 3DA1-378 |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C105 | CAPACITOR, fixed: ceramic; 7 mmf ±0.25 mmf; temp coef O PPM/°C; Centralab. | 044 1142 98 | |
| C106 | CAPACITOR, fixed: ceramic; CC20CK020C; 2.0 mmf ±1/4 mmf; 500 vdcw. | 916 0075 00 | 3D9002-33 |
| C107 | CAPACITOR, variable: glass; 0.5 mmf to 3.0 mmf; 500 vdcw; adj. core; Corning Glass. | 044 1553 98 | |
| C108 | CAPACITOR, fixed: ceramic; CC20CH090C; 9.0 mmf ±1/4 mmf; 500 vdcw. | 916 0133 00 | |
| C109 | CAPACITOR, fixed: mica; same as C101. | 044 0578 98 | |
| C110 | CAPACITOR, fixed: ceramic; CC20SK020C; 2.0 mmf ±1/4 mmf; 500 vdcw. | 916 0629 00 | |
| C111 | CAPACITOR, fixed: mica; same as C101. | 044 0578 98 | |
| C112 | SHEET, mica: no. 1 bypass; irregular shape; 0.003 in. thk by 0.718 in. w by 0.812 in. lg; two 0.064 in. dia holes spaced 0.375 in. C to C. | 594 9747 002 | |
| C113 | CAPACITOR, fixed: mica; same as C101. | 044 0578 98 | |
| C114 | CAPACITOR, fixed: ceramic; 20 mmf ±10%; N220 PPM/°C, ±60 PPM/°C; 500 vdcw; Centralab. | 044 1143 98 | |
| C115 | CAPACITOR, variable: glass; same as C107. | 044 1553 98 | |
| C116 | CAPACITOR, fixed: mica; same as C103. | 912 0667 00 | 3D9500-213 |
| C117 | CAPACITOR, fixed: ceramic; same as C110. | 916 0629 00 | |
| C118 | CAPACITOR, fixed: mica; same as C101. | 044 0578 98 | |
| C119 | CHASSIS: power amplifier cavity; c/o chassis, welded grid plate, 2 grounding fingers and mtg hdwe; 2 in. w by 3-1/8 in. h by 4-3/4 in. lg. | 594 9848 002 | |
| C120 | CAPACITOR, fixed: mica; same as C101. | 044 0578 98 | |
| C121 | CAPACITOR, fixed: ceramic; same as C114. | 044 1143 98 | |
| C122 | CAPACITOR, variable: glass; same as C107. | 044 1553 98 | |
| C123 | CAPACITOR, fixed: ceramic; same as C110. | 916 0629 00 | |
| C124 | CAPACITOR, fixed: mica; same as C101. | 044 0578 98 | |
| C126 | CAPACITOR, fixed: ceramic; same as C114. | 044 1143 98 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C127 | CAPACITOR, variable: glass; same as C107. | 044 1553 98 | |
| C128 | CAPACITOR, fixed: ceramic; 4 mmf ±0.25 mmf; ±60 PPM/°C; 500 vdcw; Centralab. | 913 2189 00 | |
| C130 | CAPACITOR, fixed: mica; 500 mmf ±20%; 500 vdcw; Sangamo. | 044 0580 98 | |
| C131 | PLATE, capacitor: glass supported teflon w/ copper both sides; 0.011 in. thk by 5/8 in. w by 2-9/16 in. lg; four 0.140 in. dia holes irregularly spaced. | 593 0650 002 | |
| C132 | PLATE, capacitor: c/o insulator cemented to trimmer; 1/2 in. dia by 0.343 in. lg; no. 6-32 NC-2A thd. | 593 0663 002 | |
| C133 | CAPACITOR, fixed: mixa; same as C103. | 912 0667 00 | 3D9500-213 |
| C134 | CAPACITOR, fixed: mica; same as C101. | 044 0578 98 | |
| C135 | CAPACITOR, fixed: ceramic; CC20CH060C; 6.0 mmf ±1/4 mmf; 500 vdcw. | 916 0121 00 | 3D9006-45 |
| C136 | CAPACITOR, fixed: ceramic; same as C102. | 916 4188 00 | 3D9020-37 |
| C137 | CAPACITOR ASSEMBLY: c/o 2 fixed mica capacitors; 2 grounding plates; 2 spacing plates; clip and hardware. | 593 0624 002 | |
| E101 | TERMINAL, FEEDTHRU, INSULATED: lug type; glass insulation, brass conductor; 0.200 in. dia by 0.484 in. lg; 3000 v rms breakdown voltage; 0.200 in. dia by 0.010 in. thk for mtg; Stupakoff, type no. FC. | 306 0070 00 | 3Z12080-3 |
| E102 | INSULATOR, STANDOFF: steel fused to glass; 1000 v rms flashover; 11/64 in. by 23/64 in.; Fusite Corp. cat. no. 4-ZDTH. | 306 0413 00 | |
| E103 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E104 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E105 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E106 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E107 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E110 | SHIELD, ELECTRON TUBE: accommodates T-5-1/2 tube envelope; cylindrical w/ flared end; 0.810 in. lg by 0.930 in. w by 1-3/4 in. d. | 541 6551 003 | |
| E111 | SHIELD, ELECTRON TUBE: same as E110 | 541 6551 003 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| E112 | SHIELD, ELECTRON TUBE: same as E110. | 541 6551 003 | |
| E113 | TERMINAL, lug: phosphor bronze; 0.018 in. by 5/16 in. by 41/64 in.; Shakeproof. | 304 0318 00 | |
| E114 | TERMINAL, lug: brass, 0.025 in. by 5/16 in. by 7/16 in.; 9/64 in. mtg. hole; Pat - Mac Guyer cat. no. 3017-6. | 304 3020 00 | |
| E115 | TERMINAL, lug: copper, silver plated; 0.064 in. by 0.180 in. by 0.375 in.; irregular bend. | 594 9806 002 | |
| E116 | INSULATOR, standoff: KEL-F; 0.100 in. lg; base dia 5/16 in., top dia 0.217 in., 0.140 in. dia center hole. | 593 0619 002 | |
| E117 | TERMINAL, lug: copper, silver plated; rd tongue end; 0.312 in. by 15/32 in. by 9/16 in. | 593 0712 002 | |
| E118 | STATOR, UHF tuner: c/o stator mtg block, terminal plate, inductance ring, tuner block, support post and stator plate; 1.812 in. lg by 23/32 in. w by 1-1/2 in. h approx o/a dim. | 594 9847 003 | |
| E119 | STATOR, UHF tuner: same as E118. | 594 9847 003 | |
| E120 | STATOR, UHF tuner: same as E118. | 594 9847 003 | |
| E121 | STATOR, UHF tuner: driver; c/o stator plate mtg block, rf terminal plate; tuner block; support post, inductance ring and driver stator plate; 1.812 in. lg, 7/32 in. w by 1-1/2 in. h o/a dim. | 593 0733 003 | |
| E122 | SHAFT-RF amplifier: pinned; c/o coupling pinned to RF amplifier shaft w/ 7/0 taper pin; 1 in. dia by 1.687 in. lg o/a. | 593 0713 002 | |
| E123 | ROTOR, capacitor: PA; c/o right and left PA rotor plates, hub, 5 capacitor plates and 2 grounding washers; 1.375 in. lg, 13/16 in. w, 1-5/16 in. h approx o/a. | 593 0694 002 | |
| E124 | STATOR, capacitor: c/o stator mount, 6 stator plates and wire; 9/16 in. lg, 1-13/32 in. w, 1-1/16 in. h approx o/a. | 593 0695 002 | |
| E126 | RING, connector: c/o connector spring spotwelded to ring 4 places; 0.406 in. d by 1.585 in. ID by 1.752 in. OD. | 593 0626 002 | |
| E127 | TERMINAL, lug: accommodates 1 wire; 0.016 in. by 1/4 in. by 17/32 in.; Pat - Mac Guyer Co. #4007. | 304 0015 00 | 3Z12073-47.25 |
| E128 | RIBBON: copper, silver plated; 0.125 in. w by 0.005 in. thk. | 430 1003 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| E129 | INSERT, ELECTRON TUBE SOCKET: for 7 pin tube; cadmium plated copper; 0.005 in. thk by 13/32 in. w by 2-5/16 in. lg; 7 tabs bent to 4° angle. | 541 6532 003 | |
| E130 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E131 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| J101 | CONNECTOR, receptacle: miniature, panel mtd; brass, teflon ins; 600 v rms; Microdot Div of Felts Corp. #3120. | 357 9256 00 | |
| J102 | CONNECTOR, receptacle: same as J101. | 357 9256 00 | |
| J103 | CONNECTOR, receptacle: single rd female cont; straight type; w/w 0.050 in. male cont; Sealectro #SKT-1 | 360 0077 00 | |
| J104 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J105 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J106 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J107 | CONNECTOR, receptacle: miniature, panel mtd; brass teflon ins; 600 v rms; Microdot Div of Felts Corp. #3104. | 357 9257 00 | |
| J110 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| K101 | RELAY, ARMATURE: cont arrangement 1C; 30 w, 50 ohms; 28 vdc coil; Danbury Knudsen type CR107. | 044 0643 99 | |
| K102 | RELAY, subassembly: c/o connector J102, relay coil, cables W103 and W104, Resistor R114 and assorted hdwe; 0.718 in. by 2 in. by 2.406 in. approx o/a dim w/o cables: | 593 0737 004 | |
| L101 | COIL, RF: choke; 2 wnd; unshielded; 38 turns #26 AWG wire; 0.6 ±20% uh at 25 mc; phenolic form. | 044 3532 99 | |
| L102 | COIL, RF: choke; single wnd; unshielded; 20 turns #26 AWG wire; 0.5 uh ±20% at 25 mc; phenolic form; Delevan. | 044 3538 99 | |
| L103 | COIL, RF: choke; single wnd; unshielded; 60 turns #36 AWG wire; 15 uh, ±20% at 2.5 mc; powdered iron form; Delevan. | 044 3537 99 | |
| L104 | COIL, RF: same as L101. | 044 3532 99 | |
| L105 | COIL, RF: same as L102. | 044 3538 99 | |
| L106 | COIL, RF: same as L101. | 044 3532 99 | |
| L107 | COIL, RF: same as L102. | 044 3538 99 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| L108 | COIL, RF: same as L101. | 044 3532 99 | |
| L109 | COIL, RF: same as L102. | 044 3538 99 | |
| L111 | FLANGE, mounting loop: c/o mtg block, insulator, flange, inductance loop, cable and hdwe; 1 in. dia. by 1.203 in. lg approx o/a dim excluding cable. | 593 0725 003 | |
| L112 | COIL, RF: choke; single wnd, single layer wnd; unshielded; 0.33 uh ±20% at 25 mc; 0.07 ohm; phenolic form; Jeffers #10100-24. | 240 0068 00 | |
| L113 | COIL, RF: same as L103. | 044 3537 99 | |
| L114 | COIL, RF: same as L102. | 044 3538 99 | |
| P101 | CONNECTOR, plug: 14 round male cont; pol; straight type; 5 amp, 300 v rms max; Amphenol #26-173. | 372 1044 00 | 2Z3034-60 |
| P102 | CONNECTOR, plug: Army-Navy UG-88/U; Bu Ships dwg RE49F246; u/w RG-58/U cable. | 357 9018 00 | 2Z7390-88 |
| P103 | CONNECTOR, plug: Min, Microdot #3220 (part of W103) (built in). | | |
| P104 | CONNECTOR, plug: Min, Microdot #3230 (part of W104) (built in). | | |
| R101 | RESISTOR, fixed: composition; RC20GF333K; 33,000 ohms ±10%; 1/2 w power dissipation. | 745 1415 00 | 3RC20GF333K |
| R102 | RESISTOR, fixed: composition; same as R101. | 745 1415 00 | 3RC20GF333K |
| R103 | RESISTOR, fixed: wirewound; RU3B101J; 100 ohms ±5%; 1/2 w power rating. | 707 9213 00 | 3RU25608 |
| R104 | RESISTOR, fixed: composition; RC20GF101K; 100 ohms ±10%; 1/2 w power dissipation. | 745 1310 00 | 3RC20GF101K |
| R105 | RESISTOR, fixed: composition; same as R104. | 745 1310 00 | 3RC20GF101K |
| R106 | RESISTOR, fixed: composition; RC20GF182K; 1800 ohms ±10%; 1/2 w power dissipation. | 745 1363 00 | 3RC20GF182K |
| R107 | RESISTOR, fixed: composition; MIL RC20GF104K; 0.10 meg ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1436 00 | 3RC20GF104K |
| R108 | RESISTOR, variable: composition; 500 ohms ±20%; 1/2 w; CTS type #65. | 380 6273 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| R109 | RESISTOR, fixed: wire wound; 5.45 ohms ±1%; 2 w; Dale Prod type RS-2. | 747 9652 00 | |
| R110 | RESISTOR, fixed: composition; RC20GF561K; 560 ohms ±10%; 1/2 w power dissipation. | 745 1342 00 | |
| R111 | RESISTOR, fixed: wirewound; same as R103. | 707 9213 00 | 3RU25608 |
| R113 | RESISTOR, fixed: wirewound; power type; 89 ohms ±3%; 2 w; Dale Products RS-2. | 747 9340 00 | |
| R114 | RESISTOR, fixed: composition; MIL #RC20GF100K; 10 ohms ±10% tol; 1/2 w power dissipation; MIL-R-11. | 745 1268 00 | 3RC20GF100K |
| R115 | RESISTOR, fixed: composition; RC20GF272K; 2700 ohms ±10%; 1/2 w power dissipation. | 745 1370 00 | 3RC20GF272K |
| R116 | RESISTOR, fixed: composition; RC32GF182K; 1800 ohms ±10%; 1 w power dissipation. | 745 3363 00 | |
| R117 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R118 | RESISTOR, fixed: film; RN20X3010F; 301 ohms ±1%; 1/2 w power dissipation. | 705 2118 00 | |
| R119 | RESISTOR, fixed: composition; RC20GF152K; 1500 ohms ±10%; 1/2 w power dissipation. | 745 1359 00 | 3RC20GF152K |
| V101 | TUBE, ELECTRON: MIL #654WA; triode; MIL-E-1B. | 254 0891 00 | 2J6J4WA |
| V102 | TUBE, ELECTRON: same as V101. | 254 0891 00 | 2J6J4WA |
| V103 | TUBE, ELECTRON: same as V101. | 254 0891 00 | 2J6J4WA |
| V104 | TUBE, ELECTRON: tube type 6442; uhf triode; G.E. | 257 0106 00 | |
| V105 | TUBE, ELECTRON: MIL #4X150D; power tetrode; MIL-E-1B. | 254 0911 00 | |
| W101 | CABLE ASSEMBLY, power: terminated one end w/14 pin connector. | 593 0736 004 | |
| W102 | CABLE ASSEMBLY, special purpose: 10 ft lg; 1 MIL-C-3608 one pin connector; RG-141/u cable. | 593 0681 002 | |
| W103 | CABLE ASSEMBLY, RF: assembly w/ one end terminated in a right angle plug connector and other end unprocessed; incl P103; Microdot. | 426 1518 00 | |
| W104 | CABLE ASSEMBLY, RF: assembly w/ one end terminated in a plug connector and other end unprocessed; incl P104; Microdot. | 426 1468 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| W105 | CABLE, RF: Coaxial; 0.062 in. dia wire by 0.671 in. w by 2-5/8 in. lg. | 593 0716 002 | |
| XV101 | SOCKET, TUBE: 7 cont miniature; phenolic ins; copper cont; Sylvania #V24-6034. | 220 1273 00 | |
| XV102 | SOCKET, TUBE: same as XV101. | 220 1273 00 | |
| XV103 | SOCKET, TUBE: same as XV101. | 220 1273 00 | |
| XV105 | TUBE SOCKET: c/o control insulator, 7 tube pin contacts, 1 grd tube socket ring and mtg hdwe; 2.797 in. dia o/a. | 593 0726 003 | |
| Z101 | SHAFT-RF amplifier: same as E122. | 593 0713 002 | |
| Z101A | STATOR, UHF tuner: same as E118; part of Z101. | 594 9847 003 | |
| Z102 | SUPPRESSOR, parasitic: c/o 47 ohm resistor, capacitor, Fiberglas sleeve and coil. | 594 9921 002 | |
| Z103 | SHAFT-RF amplifier: same as E122. | 593 0713 002 | |
| Z103A | STATOR, UHF tuner: same as E118; part of Z103. | 594 9847 003 | |
| Z104 | TUNED CIRCUIT ASSY: 200-370 mc. | 594 9915 002 | |
| Z105 | SHAFT-RF amplifier: same as E122. | 593 0713 002 | |
| Z105A | STATOR, UHF tuner: same as E118; part of Z105. | 594 9847 003 | |
| Z107 | SHAFT-RF amplifier: same as E122. | 593 0713 002 | |
| Z107A | STATOR, UHF tuner: same as E121; part of Z107. | 593 0733 003 | |
| Z108 | ROTOR, capacitor: same as E123. | 593 0694 002 | |
| Z108A | STATOR, capacitor: same as E124; part of Z108. | 593 0695 002 | |
| C201 | CAPACITOR, fixed: ceramic; 1000 mmf, guar min tol; 500 vdcw; Centralab DA562-085. | 913 0146 00 | |
| C202 | CAPACITOR, fixed: mica; 1000 mmf ±20% tol; 500 vdcw; Erie type #370. | 912 1108 00 | 3DA1-379 |
| C203 | CAPACITOR, fixed: mica; 100 mmf ±10%; 500 vdcw; Electro Motive #CM15E101K. | 912 0495 00 | 3D9100-365 |
| C204 | CAPACITOR, fixed: mica; same as C203. | 912 0495 00 | 3D9100-365 |
| C205 | CAPACITOR, fixed: mica; same as C103. | 912 0667 00 | 3D9500-213 |
| C206 | CAPACITOR, fixed: mica; same as C103. | 912 0667 00 | 3D9500-213 |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C207 | CAPACITOR, fixed: mica; same as C203. | 912 0495 00 | 3D9100-365 |
| C208 | CAPACITOR, variable: trimmer; 1.0 to 8.0 mmf; 500 vdc working; brass, glass ins; JFD Mfg type VC-3GI. | 922 0412 00 | |
| C209 | CAPACITOR, fixed: mica; same as C104. | 912 0668 00 | 3DA1-378 |
| C210 | CAPACITOR, fixed: mica; 15 mmf ±10%; 500 vdcw; Electro Motive #CM15C150K. | 912 0438 00 | |
| C211 | CAPACITOR, fixed: mica; 510 mmf ±10%; 300 vdcw; Electro Motive #CM15E511K. | 912 0546 00 | 3D9510-35 |
| C212 | CAPACITOR, fixed: mica; same as C103. | 912 0667 00 | 3D9500-213 |
| C213 | CAPACITOR, fixed: mica; same as C103. | 912 0667 00 | 3D9500-213 |
| C214 | CAPACITOR, fixed: same as C114. | 044 1143 98 | |
| C215 | CAPACITOR, variable: glass; same as C107. | 044 1553 98 | |
| C216 | CAPACITOR, fixed: same as C110. | 916 0629 00 | |
| C217 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| C218 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| C219 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| C220 | CAPACITOR, fixed: same as C114. | 044 1143 98 | |
| C221 | CAPACITOR, variable: glass; same as C107. | 044 1553 98 | |
| C222 | CAPACITOR, fixed: same as C110. | 916 0629 00 | |
| C223 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| C224 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| C225 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| C226 | CAPACITOR, fixed: same as C114. | 044 1143 98 | |
| C227 | CAPACITOR, variable: glass; same as C107. | 044 1553 98 | |
| C228 | CAPACITOR, fixed: ceramic; same as C110. | 916 0629 00 | |
| C229 | CAPACITOR, fixed: mica; same as C103. | 912 0667 00 | 3D9500-213 |
| C230 | CAPACITOR, fixed: mica; same as C103. | 912 0667 00 | 3D9500-213 |
| C231 | CAPACITOR, fixed: mica; same as C103. | 912 0667 00 | 3D9500-213 |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C232 | CAPACITOR, fixed: ceramic; same as C114. | 044 1143 98 | |
| C233 | CAPACITOR, variable: glass; same as C107. | 044 1553 98 | |
| C234 | CAPACITOR, fixed: ceramic; same as C110. | 916 0629 00 | |
| C235 | CAPACITOR, fixed: ceramic; CC20CH040C; 4.0 mmf ±1/4 mmf; 500 vdcw. | 916 0113 00 | 3D9004-32 |
| C236 | CAPACITOR, fixed: ceramic; 10 mmf ±1.0 mmf tol; neg temp coef 1400 PPM/°C, ±15%, 500 vdcw; Centralab DA934-002. | 913 0050 00 | 3D9010-174 |
| E201 | SHIELD, tube: 9 pin noval; cylindrical w/ flared end; brass; 0.950 in. by 1.065 in. by 1-1/2 in. | 541 6553 003 | |
| E202 | SHIELD, ELECTRON TUBE: 7 pin miniature; cylindrical w/ flared end; brass; 0.810 in. by 0.930 in. by 1-3/8 in. | 541 6550 003 | |
| E203 | SHIELD, ELECTRON TUBE: accommodates T-5-1/2 tube envelope; cylindrical w/ flared end; 0.810 in. lg by 0.930 in w by 1-3/4 in. d. | 541 6551 003 | |
| E204 | SHIELD, ELECTRON TUBE: accommodates T-5-1/2 tube envelope; cylindrical w/ flared end; 0.810 in. lg by 0.930 in. w by 1-3/4 in d. | 541 6551 003 | |
| E205 | SHIELD, ELECTRON TUBE: accommodates T-5-1/2 tube envelope; cylindrical w/ flared end; 0.810 in. lg by 0.930 in. w by 1-3/4 in. d. | 541 6551 003 | |
| E206 | TERMINAL, FEEDTHRU, INSULATED: lug type, brass, electro-tinned finish; 0.218 in. dia by 2.083 in. lg; Sealectro Corp. cat. no. FT-M-2. | 306 0326 00 | 3Z741-63 |
| E207 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E208 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E209 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E210 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E211 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E212 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E213 | GROUND, TUBE SOCKET: copper, silver pl; 2-1/4 in. lg, 1-1/2 in. w, 0.125 in. h o/a; 0.010 in. thk. | 594 9897 002 | |
| E214 | GROUND, TUBE SOCKET: same as E213. | 594 9897 002 | |
| E215 | GROUND, TUBE SOCKET: same as E213. | 594 9897 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| E216 | STATOR, UHF TUNER: c/o RF terminal plate, inductance ring, tuner block, mtg block, support post and stator plate; 200 to 370 mc; 1.812 in. lg, 23/32 in. w, 1-1/2 in. h approx o/a dim. | 594 9943 003 | |
| E217 | STATOR, UHF TUNER: same as E216. | 594 9943 003 | |
| E218 | STATOR, UHF TUNER: same as E216. | 594 9943 003 | |
| E219 | STATOR, UHF TUNER: same as E216. | 594 9943 003 | |
| E220 | ROTOR, UHF TUNER: c/o rotor assembly, solid hub coupling, bearing mtg flange, spring, washer, ball bearing and taper pin; 200 to 370 mc; 6-5/8 in. lg by 1-5/16 in. od. | 594 9945 003 | |
| E221 | TERMINAL, LUG: same as E127. | 304 0015 00 | 3Z12073-47.25 |
| E222 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E223 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E224 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E225 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E226 | INSERT, ELECTRON TUBE SOCKET: for 9 pin tube; cadmium plated copper; 0.005 in. thk by 13/32 in. w by 2-25/32 in. lg; 8 tabs bent to 40° angle. | 541 6533 003 | |
| J201 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J202 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J203 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J204 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J205 | CONNECTOR, receptacle: same as J101. | 357 9256 00 | |
| L201 | COIL, RF: oscillator; 12 turns #28 AWG wire; unshielded; steatite form; powdered iron core. | 594 9917 002 | |
| L202 | COIL, RF: same as L201. | 594 9917 002 | |
| L203 | COIL, RF: oscillator; 11 turns #28 AWG wire; unshielded; steatite form; powdered iron core. | 594 9909 002 | |
| L204 | COIL, RF: oscillator; 10 turns #28 AWG wire; unshielded; steatite form; powdered iron core. | 594 9908 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| L205 | COIL, RF: oscillator; 9 turns #28 AWG wire; unshielded; steatite form; powdered iron core. | 594 9907 002 | |
| L206 | COIL, RF: same as L205. | 594 9907 002 | |
| L207 | COIL, RF: oscillator; 8 turns #28 AWG wire; unshielded; steatite form; powdered iron core. | 594 9906 002 | |
| L208 | COIL, RF: same as L207. | 594 9906 002 | |
| L209 | COIL, RF: same as L201. | 594 9917 002 | |
| L210 | COIL, RF: same as L201. | 594 9917 002 | |
| L211 | COIL, RF: same as L201. | 594 9917 002 | |
| L212 | COIL, RF: same as L201. | 594 9917 002 | |
| L213 | COIL, RF: same as L203. | 594 9909 002 | |
| L214 | COIL, RF: same as L203. | 594 9909 002 | |
| L215 | COIL, RF: same as L204. | 594 9908 002 | |
| L216 | COIL, RF: same as L204. | 594 9908 002 | |
| L217 | COIL, RF: same as L205. | 594 9907 002 | |
| L218 | COIL, RF: same as L205. | 594 9907 002 | |
| L219 | COIL, RF: choke; single wnd, single layer wnd; unshielded; 0.68 uh ±20%; 35 min Q at 15 mc; 0.15 ohm; phenolic form; Jeffers Elect #10100-28. | 240 0061 00 | 2Z2599A-16 |
| L220 | COIL, RF: choke; single wnd, single layer wnd; unshielded; 1.50 uh ±20%; 30 min Q at 10 mc; 0.50 ohm; phenolic form; Jeffers Elect #10100-32. | 240 0063 00 | |
| L221 | COIL, RF: choke; single wnd, 3 pie univ wnd; unshielded; 500 uh ±10% at 1000 kc; pwd iron form; 500 vdc; National #C-0047109. | 240 0073 00 | 3C357-57 |
| L222 | COIL, RF: 4 turns #20 tinned copper wire; air wound; 2-1/8 in. free lg x 3/16 in. ID. | 594 9918 002 | |
| L223 | COIL, RF: same as L101. | 044 3532 99 | |
| L224 | COIL, RF: same as L102. | 044 3538 99 | |
| L225 | COIL, RF: same as L101. | 044 3532 99 | |
| L226 | COIL, RF: same as L102. | 044 3538 99 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| L227 | COIL, RF: same as L101. | 044 3532 99 | |
| L228 | COIL, RF: same as L102. | 044 3538 99 | |
| L229 | COIL, RF: same as L101. | 044 3532 99 | |
| L230 | COIL, RF: same as L102. | 044 3538 99 | |
| P201 | CONNECTOR, plug: 11 round male contact; pol; straight type; 5 amp, 300 vac rms max; Dejur-Amsco type 20, #11-20P. | 372 1530 00 | |
| R201 | RESISTOR, fixed: composition; same as R115. | 745 1370 00 | 3RC20GF272K |
| R202 | RESISTOR, fixed: composition; RC20GF220K; 22 ohms ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1282 00 | 3RC20GF220K |
| R203 | RESISTOR, fixed: composition; RC20GF221K; 220 ohms ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1324 00 | 3RC20GF221K |
| R204 | RESISTOR, fixed: composition; same as R203. | 745 1324 00 | 3RC20GF221K |
| R205 | RESISTOR, fixed: composition; RC20GF103K; 10,000 ohms ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1394 00 | 3RC20GF103K |
| R206 | RESISTOR, fixed: composition: same as R114. | 745 1268 00 | 3RC20GF100K |
| R207 | RESISTOR, fixed: composition; RC20GF124K; 0.12 meg ±10%; 1/2 w power dissipation. | 745 1440 00 | 3RC20GF124K |
| R208 | RESISTOR, fixed: composition; RC20GF223K; 22,000 ohms ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1408 00 | 3RC20GF223K |
| R209 | RESISTOR, fixed: composition; RC20GF823K; 82,000 ohms ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1433 00 | 3RC20GF823K |
| R210 | RESISTOR, fixed: composition; RC32GF223K; 22,000 ohms ±10%; 1 w power dissipation; MIL-R-11. | 745 3408 00 | 3RC32GF223K |
| R211 | RESISTOR, fixed: composition; RC32GF392K; 3900 ohms ±10%; 1 w power dissipation MIL-R-11. | 745 3377 00 | |
| R212 | RESISTOR, fixed: composition; MIL #RC32GF222K; 2200 ohms ±10%; 1 w power dissipation; MIL-R-11. | 745 3366 00 | |
| R213 | RESISTOR, fixed: same as R101. | 745 1415 00 | 3RC20GF333K |
| R214 | RESISTOR, fixed: wirewound; 44 ohms ±3%; 2 w; Dale Products type RS-2. | 747 9341 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| S201 | SWITCH, rotary wafer: c/o 4 tabs, contact spacer, coil switch, switch contact and rotary contact. | 594 9919 002 | |
| S202 | SWITCH SECTION, rotary: c/o 4 switch tabs, 2 contact spacers; crystal switch and 2 rotary contacts. | 594 9920 002 | |
| V201 | TUBE, ELECTRON: MIL #5670; miniature triode; MIL-E-1B. | 254 0852 00 | 2J5670 |
| V202 | TUBE, ELECTRON: MIL #5654/6AK5W; pentode; MIL-E-1B. | 254 0846 00 | 2J5654/ 6AK5W |
| V203 | TUBE, ELECTRON: same as V101. | 254 0891 00 | 2J6J4WA |
| V204 | TUBE, ELECTRON: same as V101. | 254 0891 00 | 2J6J4WA |
| V205 | TUBE, ELECTRON: same as V101. | 254 0891 00 | 2J6J4WA |
| W201 | CABLE ASSEMBLY, frequency mult ampl: terminated one end w/ 11 pin connector. | 594 9950 003 | |
| W202 | CABLE: special purpose electrical; 2-1/2 in. lg approx. | 594 9951 003 | |
| XV201 | SOCKET, TUBE: 9 cont miniature; phenolic ins; copper cont; saddle mtg; Sylvania #V24-6035. | 220 1244 00 | |
| XV202 | SOCKET, TUBE: same as XV101. | 220 1273 00 | |
| XV203 | SOCKET, TUBE: same as XV101. | 220 1273 00 | |
| XV204 | SOCKET, TUBE: same as XV101. | 220 1273 00 | |
| XV205 | SOCKET, TUBE: same as XV101. | 220 1273 00 | |
| Y202 | CRYSTAL UNIT, QUARTZ: 35000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4121 99 | |
| Y204 | CRYSTAL UNIT, QUARTZ: 38333.33 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohms. | 044 4125 99 | |
| Y206 | CRYSTAL UNIT, QUARTZ: 41666.66 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4129 99 | |
| Y207 | CRYSTAL UNIT, QUARTZ: 43333.33 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4130 99 | |
| Y208 | CRYSTAL UNIT, QUARTZ: 45,000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4131 99 | |
| Y209 | CRYSTAL UNIT, QUARTZ: 31111 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohms. | 044 4117 99 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| Y210 | CRYSTAL UNIT, QUARTZ: 32222.22 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohms. | 044 4118 99 | |
| Y211 | CRYSTAL UNIT, QUARTZ: 33333.33 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohms. | 044 4119 99 | |
| Y212 | CRYSTAL UNIT, QUARTZ: 34444.44 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4120 99 | |
| Y213 | CRYSTAL UNIT, QUARTZ: 35555.55 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4122 99 | |
| Y214 | CRYSTAL UNIT, QUARTZ: 36666.66 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohms. | 044 4123 99 | |
| Y215 | CRYSTAL UNIT, QUARTZ: 37777.77 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohms; | 044 4124 99 | |
| Y216 | CRYSTAL UNIT, QUARTZ: 38888.88 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohms. | 044 4126 99 | |
| Y217 | CRYSTAL UNİT, QUARTZ: 40,000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohms. | 044 4127 99 | |
| Y218 | CRYSTAL UNIT, QUARTZ: 41111.11 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4128 99 | |
| Z201 | TUNER, RF: c/o 4 switch tabs; contact spacer; step tuner and 2 rotary contacts. | 594 9916 002 | |
| Z202 | STATOR, UHF TUNER: same as E216. | 594 9943 003 | |
| Z202A | ROTOR, UHF TUNER: same as E220; p/o Z202. | 594 9945 003 | |
| Z203 | TUNED CIRCUIT ASSY: same as Z104. | 594 9915 002 | |
| Z204 | STATOR, UHF TUNER: same as E216. | 594 9943 003 | |
| Z204A | ROTOR, UHF TUNER: same as E220; p/o Z204. | 594 9945 003 | |
| Z205 | TUNED CIRCUIT ASSY: same as Z104. | 594 9915 002 | |
| Z206 | STATOR, UHF TUNER: same as E216. | 594 9943 003 | |
| Z206A | ROTOR, UHF TUNER: same as E220; p/o Z206. | 594 9945 003 | |
| Z207 | TUNED CIRCUIT ASSY: same as Z104. | 594 9915 002 | |
| Z208 | STATOR, UHF TUNER: same as E216. | 594 9943 003 | |
| Z208A | ROTOR, UHF TUNER: same as E220; p/o Z208. | 594 9945 003 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C302 | CAPACITOR, variable: trimmer; 1.0 to 8.0 mmf; 500 vdcw; brass, glass ins; JFD Mfg type VC-3G. | 922 0281 00 | |
| C303 | CAPACITOR, fixed: ceramic; CC20CK010C; 1.0 mmf ±1/4 mmf; 500 vdcw; JAN-C-20A. | 928 0070 00 | |
| C304 | CAPACITOR, variable; same as C302. | 922 0281 00 | |
| C305 | CAPACITOR, fixed: ceramic; CC30CH300J; 30 mmf ±5%; 500 vdcw; JAN-C-20A. | 928 4337 00 | 3D9030-104 |
| C306 | CAPACITOR, variable: same as C302. | 922 0281 00 | |
| C307 | CAPACITOR, fixed: ceramic; CC30CH180J; 18 mmf ±5%; 500 vdcw; JAN-C-20A. | 928 4184 00 | |
| C308 | CAPACITOR, fixed: ceramic; same as C303. | 928 0070 00 | |
| C309 | CAPACITOR, variable: same as C302. | 922 0281 00 | |
| C310 | CAPACITOR, fixed: ceramic; same as C307. | 928 4184 00 | |
| C311 | CAPACITOR, fixed: ceramic; same as C305. | 928 4337 00 | 3D9030-104 |
| C312 | CAPACITOR, fixed: ceramic; CC20PH100F; 10.0 mmf ±1%; 500 vdcw; JAN-C-20A. | 928 0281 00 | |
| C313 | CAPACITOR, fixed: ceramic; same as C307. | 928 4184 00 | |
| C314 | CAPACITOR, fixed: ceramic; same as C303. | 928 0070 00 | |
| C315 | CAPACITOR, fixed: ceramic; CC30CH330K; 33 mmf ±10%; 500 vdcw; JAN-C-20A. | 928 4013 00 | |
| C316 | CAPACITOR, fixed: ceramic; same as C303. | 928 0070 00 | |
| C317 | CAPACITOR, variable: same as C302. | 922 0281 00 | |
| C318 | CAPACITOR, fixed: ceramic; 2000 mmf, guar min tol; 500 vdcw; Centralab #DA521-001A. | 913 0997 00 | 3DA2-222 |
| C319 | CAPACITOR, fixed: ceramic; same as C318. | 913 0997 00 | 3DA2-222 |
| C320 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C321 | CAPACITOR, fixed: ceramic; 3000 mmf, guar min tol; 500 vdcw; Centralab DA523-001A. | 913 0996 00 | 3DA3-151 |
| C322 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C323 | CAPACITOR, fixed: ceramic; same as C318. | 913 0997 00 | 3DA2-222 |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C324 | CAPACITOR, fixed: ceramic; same as C321 | 913 0996 00 | 3DA3-151 |
| C325 | CAPACITOR, fixed: ceramic; CC30SL101K; 100 mmf ±10%; 500 vdcw; JAN-C-20A. | 928 4003 00 | 3D9100-350 |
| C326 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C327 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C328 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C329 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| C301 | CAPACITOR, fixed: ceramic; CC30CH200J; 20 mmf ±5%; 500 vdcw; JAN-C-20A. | 928 4188 00 | 3D9020-37 |
| C330 | CAPACITOR, fixed: ceramic; same as C321. | 913 0996 00 | 3DA3-151 |
| C331 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C332 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C333 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C334 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| C335 | CAPACITOR, fixed: ceramic; same as C325. | 928 4003 00 | 3D9100-350 |
| C336 | CAPACITOR, fixed: ceramic; same as C321. | 913 0996 00 | 3DA3-151 |
| C337 | CAPACITOR, fixed: ceramic; same as C325. | 928 4003 00 | 3D9100-350 |
| C338 | CAPACITOR, fixed: ceramic; same as C305. | 928 4337 00 | 3D9030-104 |
| C339 | CAPACITOR, fixed: ceramic; CC20CH050C; 5.0 mmf ±1/4 mmf; 500 vdcw; JAN-C-20A. | 928 0117 00 | |
| C340 | CAPACITOR, variable: same as C302. | 922 0281 00 | |
| C341 | CAPACITOR, fixed: ceramic; same as C321. | 913 0996 00 | 3DA3-151 |
| C342 | CAPACITOR, fixed: ceramic; same as C321. | 913 0996 00 | 3DA3-151 |
| C343 | CAPACITOR, fixed: ceramic; CC30CH470K; 47 mmf ±10%; 500 vdcw; JAN-C-20A. | 928 4363 00 | 3D9047-109 |
| C344 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| C345 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| E301 | SHIELD, ELECTRON TUBE: same as E202. | 541 6550 003 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| E302 | SHIELD, ELECTRON TUBE: same as E202. | 541 6550 003 | |
| E303 | SHIELD, ELECTRON TUBE: same as E202. | 541 6550 003 | |
| E304 | SHIELD, ELECTRON TUBE: same as E202. | 541 6550 003 | |
| E305 | SHIELD, ELECTRON TUBE: 9 pin noval; cylindrical w/ flared end; brass; 0.950 in. by 1.065 in. by 1-1/2 in. | 541 6553 003 | |
| E314 | CORE, adjustable tuning: c/o stem soldered to 8-32 NC-2 thd brass stud; 2.3437 in. lg by 0.250 in. dia. | 593 0004 002 | |
| E315 | CORE, adjustable tuning: same as E314. | 593 0004 002 | |
| E316 | CORE, adjustable tuning: same as E314. | 593 0004 002 | |
| E317 | CORE, adjustable tuning: same as E314. | 593 0004 002 | |
| E318 | CORE, adjustable tuning: same as E314. | 593 0004 002 | |
| E319 | CORE, adjustable tuning: same as E314. | 593 0004 002 | |
| E320 | CORE, adjustable tuning: principal parts c/o core soldered to tuning stud; 8-32 NC-2 thd full lg; 2.2187 in. lg by 1/4 in. dia. | 593 0005 002 | |
| E321 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E322 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E323 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E324 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E325 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E326 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E327 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E328 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E329 | TERMINAL, lug: same as E127. | 304 0015 00 | 3Z12073-47.25 |
| E330 | TERMINAL, lug: same as E127. | 304 0015 00 | 3Z12073-47.25 |
| E331 | TERMINAL, lug: same as E127. | 304 0015 00 | 3Z12073-47.25 |
| E332 | TERMINAL, lug: same as E127. | 304 0015 00 | 3Z12073-47.25 |
| E333 | INSULATOR, plate: tank; rectangular; teflon; 0.010 in. thk by 1-3/64 in. w by 1-1/16 in. lg. | 594 9988 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| E334 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E335 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E336 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E337 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E338 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E339 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E340 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E341 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E342 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E343 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E344 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E345 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E346 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E347 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E348 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E349 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E350 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E351 | INSERT, ELECTRON TUBE SOCKET: same as E226. | 541 6533 003 | |
| J301 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J302 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J303 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J304 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J305 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| L301 | COIL, RF: 1st if.; single wound, single layer wound; 16 turns #34 AWG wire; unshielded; phenolic resin form, air core; 1-1/2 in. lg by 0.319 in. dia. | 593 0015 002 | |
| L302 | COIL, RF: same as L301. | 593 0015 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| L303 | COIL, RF: same as L301. | 593 0015 002 | |
| L304 | COIL, RF: same as L301. | 593 0015 002 | |
| L305 | COIL, RF: same as L301. | 593 0015 002 | |
| L306 | COIL, RF: same as L301. | 593 0015 002 | |
| L307 | COIL, RF: choke; single wnd, 3 layer wnd; unshielded; 6.75 uh ±10% at 3.5 mc; 71 turns #28 AWG wire; phenolic form; Otis Elec. | 240 0098 00 | 3C557Z29-31 |
| L308 | COIL, RF: same as L307. | 240 0098 00 | 3C557Z29-31 |
| L309 | COIL, RF: choke; single wnd, single layer wnd; unshielded; 12 uh; approx 50 turns #38 AWG wire; powdered iron form; Jeffers Elect #10107-1. | 240 0049 00 | 3C323-192B |
| L310 | COIL, RF: 2nd osc, 1st if.; single wound, single layer wound; 16 turns #34 AWG wire; unshielded; phenolic resin form, air core; 1-1/2 in. lg x 0.319 in. dia. | 593 0016 002 | |
| L311 | COIL, RF: choke; single wnd, single layer wnd; unshielded; 2.7 uh, 300 ma max; 45 plus 0 minus 3 turns #30 AWG wire; phenolic form; Monarch Mfg 10X036. | 240 0012 00 | 3C1084S-195 |
| P301 | CONNECTOR, plug: same as P101. | 372 1044 00 | 2Z3034-60 |
| P302 | CABLE ASSEMBLY, RF: RF Coax (Microdot #93-3902) cable assembly w/ one end terminated in a connector (Microdot #3220) and the other end unprocessed, Microdot Div, Felts Corp. | 426 1212 00 | |
| P303 | CABLE ASSEMBLY, RF: RF Coaxial cable assembly with one end terminated in a connector and the other end unprocessed. Microdot Div, Felts Corp. | 426 1263 00 | |
| P304 | CABLE ASSEMBLY, RF: RF Coaxial cable assembly w/ one end terminated in a connector and the other end unprocessed. Microdot Div, Felts Corp. | 426 1213 00 | |
| R301 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R302 | RESISTOR, fixed: composition; same as R203. | 745 1324 00 | 3RC20GF221K |
| R303 | RESISTOR, fixed: composition; RC20GF183K; 18,000 ohms ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1405 00 | 3RC20GF183K |
| R304 | RESISTOR, fixed: composition; RC20GF102J; 1000 ohms ±5%; 1/2 w power dissipation; MIL-R-11. | 745 1351 00 | |
| R305 | RESISTOR, fixed: composition; same as R303. | 745 1405 00 | 3RC20GF183K |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| R306 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R307 | RESISTOR, fixed: composition; same as R114. | 745 1268 00 | 3RC20GF100K |
| R308 | RESISTOR, fixed: composition: RC20GF330K; 33 ohms ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1289 00 | |
| R309 | RESISTOR, fixed: composition; same as R304. | 745 1351 00 | |
| R310 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R311 | RESISTOR, fixed: composition; same as R304. | 745 1351 00 | |
| R312 | RESISTOR, fixed: composition; RC20GF334K; 0.33 meg ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1457 00 | 3RC20GF334K |
| R313 | RESISTOR, fixed: composition; same as R304. | 745 1351 00 | |
| R314 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R315 | RESISTOR, fixed: composition; same as R304. | 745 1351 00 | |
| R316 | RESISTOR, fixed: composition; same as R312. | 745 1457 00 | 3RC20GF334K |
| R317 | RESISTOR, fixed: composition; same as R304. | 745 1351 00 | |
| R318 | RESISTOR, fixed: composition; RC20GF474K; 0.47 meg ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1464 00 | 3RC20GF474K |
| R319 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R320 | RESISTOR, fixed: composition; RC20GF472K; 4700 ohms ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1380 00 | 3RC20GF472K |
| R321 | RESISTOR, fixed: composition; same as R203. | 745 1324 00 | 3RC20GF221K |
| R322 | RESISTOR, fixed: composition; same as R203. | 745 1324 00 | 3RC20GF221K |
| R323 | RESISTOR, fixed: composition; RC20GF271K; 270 ohms ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1328 00 | |
| R324 | RESISTOR, fixed: composition; same as R104. | 745 1310 00 | 3RC20GF101K |
| S301 | SWITCH SECTION, ROTARY WAFER: 1 pole, 12 position; phenolic ins; spring silver clips, coin silver blades; Oak type F. | 044 5867 97 | |
| S302 | SWITCH SECTION, ROTARY WAFER: 1 pole, 12 position; phenolic ins; spring silver clips; coin silver blades; Oak type F. | 044 5866 97 | |
| V301 | TUBE, ELECTRON: same as V202. | 254 0846 00 | 2J5654/6AK5W |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| V302 | TUBE, ELECTRON: same as V202. | 254 0846 00 | 2J5654/6AK5W |
| V303 | TUBE, ELECTRON: same as V202. | 254 0846 00 | 2J5654/6AK5W |
| V304 | TUBE, ELECTRON: same as V202. | 254 0846 00 | 2J5654/6AK5W |
| V305 | TUBE, ELECTRON: same as V201. | 254 0852 00 | 2J5670 |
| W301 | CABLE ASSEMBLY, special purpose: 1st IF Ampl; c/o 14 pin connector w/ bracket, retaining spring, connector shield, wire and hdwe; 7/16 in. w by 1.312 in. h by 4.062 in. lg approx o/a dim excluding term. | 593 0808 003 | |
| W302 | LINE, TRANSMISSION, RF: 9.312 in. lg approx; c/o cable assembly rf w/ cable termination (Industrial Products Co. #21275). | 593 0051 003 | |
| W303 | LINE, TRANSMISSION, RF: 7-29/32 in. lg approx; c/o cable assembly rf w/ cable termination. (Industrial Products Co. #21275). | 593 0049 003 | |
| W304 | LINE, TRANSMISSION, RF: 7.999 in. lg approx; c/o cable assem rf w/ cable termination (Industrial Products Co. #21275). | 593 0050 003 | |
| XV301 | SOCKET, tube: same as XV101. | 220 1273 00 | |
| XV302 | SOCKET, TUBE: same as XV101. | 220 1203 00 | |
| XV303 | SOCKET, TUBE: same as XV101. | 220 1203 00 | |
| XV304 | SOCKET, TUBE: same as XV101. | 220 1273 00 | |
| XV305 | NOT USED: | 044 0238 00 | |
| Y301 | CRYSTAL UNIT, QUARTZ: 17000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4107 99 | |
| Y302 | CRYSTAL UNIT, QUARTZ: 18000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4108 99 | |
| Y303 | CRYSTAL UNIT, QUARTZ: 19000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4109 99 | |
| Y304 | CRYSTAL UNIT, QUARTZ: 20000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4110 99 | |
| Y305 | CRYSTAL UNIT, QUARTZ: 21000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4111 99 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| Y306 | CRYSTAL UNIT, QUARTZ: 22000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4112 99 | |
| Y307 | CRYSTAL UNIT, QUARTZ: 23000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4113 99 | |
| Y308 | CRYSTAL UNIT, QUARTZ: 24000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm: | 044 4114 99 | |
| Y309 | CRYSTAL UNIT, QUARTZ: 25000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4115 99 | |
| Y310 | CRYSTAL UNIT, QUARTZ: 26000 kc; single xtal pl; -40°C to +105°C oper temp; 40 ohm. | 044 4116 99 | |
| Z301 | COIL ASSEMBLY: c/o coil,connector, capacitor and bracket. | 593 0043 003 | |
| Z302 | COIL ASSEMBLY: c/o coil, connector, capacitor and bracket. | 593 0043 003 | |
| Z303 | COIL ASSEMBLY: c/o coil, connector, capacitor and bracket. | 593 0042 003 | |
| Z304 | COIL ASSEMBLY: same as Z303. | 593 0042 003 | |
| Z305 | COIL ASSEMBLY: same as Z303. | 593 0042 003 | |
| Z306 | COIL ASSEMBLY: c/o coil, connector, capacitor and bracket. | 593 0043 003 | |
| Z307 | COIL ASSEMBLY: c/o capacitor, coil, bracket and connector. | 593 0047 003 | |
| C401 | CAPACITOR, fixed: ceramic; 20 mmf ±1.0 mmf; neg temp coef 1000 PPM/°C ±15%; 500 vdcw; Centralab DA933-008. | 913 0056 00 | |
| C402 | CAPACITOR, fixed: mica; 150 mmf ±2%; 500 vdcw; Electro Motive #CM15E151G. | 912 0505 00 | 3D9150-108 |
| C403 | CAPACITOR, fixed: ceramic; CC20CH070C; 7.0 mmf ±1/4 mmf; 500 vdcw; JAN-C-20A. | 928 0125 00 | |
| C404 | CAPACITOR, fixed: ceramic; same as C401. | 913 0056 00 | |
| C405 | CAPACITOR, fixed: mica; 160 mmf ±20% tol; 500 vdcw; Electro Motive type #CM15E161G. | 912 0508 00 | |
| C406 | CAPACITOR, fixed: ceramic; 0.02 mf, +100% -20%; 500 vdcw; Centralab #DA146-000B. | 913 2142 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C407 | CAPACITOR, fixed: ceramic; same as C403. | 928 0125 00 | |
| C408 | CAPACITOR, fixed: ceramic; same as C401. | 913 0056 00 | |
| C409 | CAPACITOR, fixed: mica; same as C405. | 912 0508 00 | |
| C410 | CAPACITOR, fixed: mica; 510 mmf ±2%; 300 vdcw; Electro Motive #CM15E511G. | 912 0544 00 | 3D9510-30 |
| C411 | CAPACITOR, fixed: ceramic; same as C325. | 928 4003 00 | 3D9100-350 |
| C412 | CAPACITOR, fixed: ceramic; CC30CH150G; 15 mmf ±2%; 500 vdcw; JAN-C-20A. | 928 4179 00 | |
| C413 | CAPACITOR, fixed: ceramic; CC30UJ820G; 82 mmf ±2%; 500 vdcw; JAN-C-20A. | 928 4978 00 | |
| C414 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C415 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C416 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C417 | CAPACITOR, fixed: ceramic; CC20CK010C; 1.0 mmf ±1/4 mmf; 500 vdcw; same as C303. | 928 0070 00 | |
| C418 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C419 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| C420 | CAPACITOR, fixed: same as C202. | 912 1108 00 | 3DA1-379 |
| E401 | SHIELD, tube: 9 pin noval; cylindrical w/ flared end; brass; 0.950 in. by 1.065 in. by 1-1/2 in. | 541 6553 003 | |
| E408 | CORE, adjustable tuning: c/o stem soldered to 8-32 NC-2 threaded brass stud; 2.2187 in. lg x 0.250 in. diam o/a. | 593 0088 002 | |
| E409 | CORE, adjustable tuning: same as E408. | 593 0088 002 | |
| E410 | CORE, adjustable tuning: same as E408. | 593 0088 002 | |
| E411 | INSULATOR, feedthru: conical shape; teflon; 0.1562 in. lg; 0.04 in. ID, 0.187 in. OD. | 594 9963 002 | |
| E412 | INSULATOR, feedthru: same as E411. | 594 9963 002 | |
| E413 | INSULATOR, feedthru: same as E411. | 594 9963 002 | |
| E414 | INSULATOR, feedthru: same as E411. | 594 9963 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| E415 | INSULATOR, feedthru: same as E411. | 594 9963 002 | |
| E416 | INSULATOR, feedthru: same as E411. | 594 9963 002 | |
| E417 | TERMINAL, lug: brass or copper; 0.020 in. by 3/8 in. by 13/16 in. approx. Zierick Cat. no. 115. | 304 0231 00 | |
| E418 | TERMINAL, lug: oval tongue end; phosphor bronze; 0.018 in. by 5/16 in. by 23/32 in. | 505 5039 001 | 3Z12073-46.7 |
| E419 | TERMINAL, lug: same as E418. | 505 5039 001 | 3Z12073-46.7 |
| E420 | INSULATOR, plate: same as E333. | 594 9988 002 | |
| E421 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E422 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E423 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E424 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E425 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E426 | INSULATOR, STANDOFF: same as E102. | 306 0413 00 | |
| E427 | INSERT, ELECTRON TUBE SOCKET: same as E226. | 541 6533 003 | |
| J401 | CONNECTOR, receptacle: same as J101. | 357 9256 00 | |
| J402 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J403 | CONNECTOR, receptacle: same as J101. | 357 9256 00 | |
| J404 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| K401 | RELAY, ARMATURE: cont arrangement 1C; 250 ma at 25 vdc 1B; 25 ma at 110 vdc, coil resistance 675 ohms ±10% 26.4 v nom; Auto Elect and Allied Control. | 044 0577 99 | |
| L401 | COIL, RF: 2nd IF; 2 windings, single layer wnd; unshielded; 53 turns of #34 AWG wire, resin form; air core; 1-1/2 in. lg x 0.319 in. dia. | 593 0091 002 | |
| L402 | COIL, RF: trimmer; single winding, single layer wound; unshielded; 19 turns #28 AWG; steatite form; powdered iron core; 0.8437 in. lg by 0.250 in. across hex o/a. | 593 0092 002 | |
| L403 | COIL, RF: same as L401. | 593 0091 002 | |
| L404 | COIL, RF: same as L402. | 593 0092 002 | |
| L405 | COIL, RF: same as L401. | 593 0091 002 | |
| L406 | COIL, RF: same as L402. | 593 0092 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| L407 | COIL, RF: choke; single wnd, 3 pie univ wnd; unshielded; 2.0 mh nom; 70Q ±10%; powdered iron form; Electro Assemblies #18-119. | 240 0084 00 | 3C357-95 |
| L408 | COIL, RF: same as L311. | 240 0012 00 | 3C1084S-195 |
| L409 | COIL, RF: same as L311. | 240 0012 00 | 3C1084S-195 |
| P401 | CONNECTOR, plug: same as P201. | 372 1530 00 | |
| R401 | RESISTOR, fixed: composition; RC20GF563K; 56,000 ohms ±10%; 1/2 w power dissipation. | 745 1426 00 | 3RC20GF563K |
| R402 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R403 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R404 | RESISTOR, fixed: composition; same as R203. | 745 1324 00 | 3RC20GF221K |
| R405 | RESISTOR, fixed: composition; same as R205. | 745 1394 00 | 3RC20GF103K |
| R406 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R407 | RESISTOR, fixed: composition; RC20GF153K; 15,000 ohms ±10%; 1/2 w power dissipation MIL-R-11. | 745 1401 00 | 3RC20GF153K |
| R408 | RESISTOR, fixed: composition; RC20GF622J; 6,200 ohms ±5%; 1/2 w power dissipation; MIL-R-11. | 745 1385 00 | |
| R409 | RESISTOR, fixed: composition; RC32GF681J; 680 ohms ±5%; 1 w power dissipation; MIL-R-11. | 745 3344 00 | |
| R410 | RESISTOR, fixed: composition; same as R409. | 745 3344 00 | |
| S401 | SWITCH SECTION, ROTARY: 1 pole, 12 position; special type; spring silver clips, coin silver blades, Oak type FC. | 044 5864 97 | |
| S402 | SWITCH SECTION, ROTARY: 1 pole, 12 position; special type; spring silver clips, coin silver blades; Oak type FC. | 044 5865 97 | |
| V401 | TUBE, ELECTRON: same as V201. | 254 0852 00 | 2J5670 |
| W401 | CABLE ASSEMBLY, power: c/o 11 pin connector w/ bracket; retaining spring, connector shield, wire and hdwe; 0.437 in. w by 1.812 in. h by 3.500 in. lg approx o/a dim. excluding term. | 593 0801 003 | |
| XK401 | SOCKET, relay: c/o 7 contact, subminiature tube socket staked to relay mount; 0.312 in. w by 0.578 in. h by 1.250 in. lg. | 593 0090 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| XV401 | SOCKET, tube: 9 cont miniature; ceramic ins. copper cont saddle mtg; Sylvania. | 220 1245 00 | |
| XY401 | SOCKET, CRYSTAL: multiple socket for 10 crystals in HC-6/U holders; phenolic ins; copper cont; Amphenol. | 292 0126 00 | |
| Y401 | CRYSTAL UNIT, QUARTZ: CR-18/U in HC-6/U holder; 3000 kc; MIL-C-3098. | 291 8160 00 | |
| Y402 | CRYSTAL UNIT, QUARTZ: CR-18/U in HC-6/U holder; 3100 kc; MIL-C-3098. | 291 8174 00 | |
| Y403 | CRYSTAL UNIT, QUARTZ: CR-18/U in HC-6/U holder; 3200 kc; MIL-C-3098. | 291 8175 00 | |
| Y404 | CRYSTAL UNIT, QUARTZ: CR-18/U in HC-6/U holder; 3300 kc; MIL-C-3098. | 291 8176 00 | |
| Y405 | CRYSTAL UNIT, QUARTZ: CR-18/U in HC-6/U holder; 3400 kc; MIL-C-3098. | 291 8177 00 | |
| Y406 | CRYSTAL UNIT, QUARTZ: CR-18/U in HC-6/U holder; 3500 kc; MIL-C-3098. | 291 8168 00 | |
| Y407 | CRYSTAL UNIT, QUARTZ: CR-18/U in HC-6/U holder; 3600 kc; MIL-C-3098. | 291 8178 00 | |
| Y408 | CRYSTAL UNIT, QUARTZ: CR-18/U in HC-6/U holder; 3700 kc; MIL-C-3098. | 291 8179 00 | |
| Y409 | CRYSTAL UNIT, QUARTZ: CR-18/U in HC-6/U holder; 3800 kc; MIL-C-3098. | 291 8180 00 | |
| Y410 | CRYSTAL UNIT, QUARTZ: CR-18/U in HC-6/U holder; 3900 kc; MIL-C-3098. | 291 8181 00 | |
| Z401 | COIL SUBASSEMBLY: if; c/o 2 capacitors, 2 coils; wire and asstd hardware. | 593 0109 003 | |
| Z402 | COIL SUBASSEMBLY: if; c/o 2 capacitors, 2 coils; wire and assorted hdwe. | 593 0108 003 | |
| Z403 | COIL SUBASSEMBLY: if; same as Z402. | 593 0108 003 | |
| C502 | CAPACITOR, fixed: mica; same as C203. | 912 0495 00 | 3D9100-365 |
| C503 | CAPACITOR, fixed: mica; same as C203. | 912 0495 00 | 3D9100-365 |
| C504 | CAPACITOR, fixed: ceramic; same as C406. | 913 2142 00 | |
| C505 | CAPACITOR, fixed: ceramic; same as C406. | 913 2142 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C506 | CAPACITOR, fixed: ceramic; same as C406. | 913 2142 00 | |
| C507 | CAPACITOR, fixed: ceramic; same as C406. | 913 2142 00 | |
| C508 | CAPACITOR, fixed: ceramic; same as C406 | 913 2142 00 | |
| C509 | CAPACITOR, fixed: ceramic; same as C406. | 913 2142 00 | |
| C510 | CAPACITOR, fixed: paper; 0.10 mf ±20%; 200 vdcw; hi-temp impr; Sprague #P38502. | 931 0607 00 | 3DA100-1213 |
| C513 | CAPACITOR, fixed: ceramic; 67 mmf ±1%; neg temp coef 2200; 500 vdcw; Centralab #TB2067FR3L. | 913 1809 00 | |
| C514 | CAPACITOR, fixed: paper; 0.47 mf ±20%; 100 vdcw; hi-temp impr; Sprague #P21635. | 931 0592 00 | 3DA470-7 |
| C515 | CAPACITOR, fixed: paper; 0.22 mf ±20%; 100 vdcw; hi-temp impr; Sprague #86P22401T5. | 931 1844 00 | |
| C516 | CAPACITOR, fixed: paper; same as C510. | 931 0607 00 | 3DA100-1213 |
| C517 | CAPACITOR, fixed: paper; 33,000 mmf ±20%; characteristic E; 100 vdcw; Sprague #P66973. | 931 2500 00 | 3DA33-22 |
| C519 | CAPACITOR, fixed: paper; same as C510. | 931 0607 00 | 3DA100-1213 |
| C520 | CAPACITOR, fixed: mica; 330 mmf ±2%; 500 vdcw; Electro Motive #CM15E331G. | 912 0529 00 | 3D9330-27 |
| C521 | CAPACITOR, fixed: mica; same as C520. | 912 0529 00 | 3D9330-27 |
| C522 | CAPACITOR, fixed: paper; same as C517. | 931 2500 00 | 3DA33-22 |
| C523 | CAPACITOR, fixed: paper; 0.10 mf ±20%; 100 vdcw; hi-temp impr; Sprague #P66301. | 931 0496 00 | 3DA100-1191 |
| C524 | CAPACITOR, fixed: electrolytic; 1.5 mf -15% +20% tol; 125 vdcw; polarized; Fansteel #PP1.5B125C1. | 184 7001 00 | |
| C526 | CAPACITOR, fixed: paper; 0.33 mf ±20%; 100 vdcw; hi-temp impr; Sprague 86P33401T5. | 931 1857 00 | |
| C527 | CAPACITOR, fixed: paper; 0.10 mmf ±20%; 300 vdcw; Sprague #P66939. | 931 2516 00 | |
| C529 | CAPACITOR, ELECTROLYTIC: tantalum; 0.5 mf ±20% tol; 75 vdcw; GE #29F585. | 184 7168 00 | |
| CR501 | RECTIFIER: Hughes Junction silicon diode HD 6002. | 353 0197 00 | |
| CR503 | RECTIFIER: same as CR501. | 353 0197 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| CR504 | RECTIFIER: Hughes Junction silicon diode HD6009. | 353 0207 00 | |
| CR505 | RECTIFIER: same as CR504. | 353 0207 00 | |
| E501 | SHIELD, ELECTRON TUBE: same as E202. | 541 6550 003 | |
| E502 | SHIELD, ELECTRON TUBE: same as E202. | 541 6550 003 | |
| E503 | SHIELD, ELECTRON TUBE: same as E202. | 541 6550 003 | |
| E504 | SHIELD, ELECTRON TUBE: same as E202. | 541 6550 003 | |
| E505 | TERMINAL, lug: same as E127. | 304 0015 00 | 3Z12073-47.25 |
| E506 | TERMINAL, lug: same as E127. | 304 0015 00 | 3Z12073-47.25 |
| E507 | TERMINAL, lug: same as E217. | 304 0015 00 | 3Z12073-47.25 |
| E508 | TERMINAL, lug: same as E127. | 304 0015 00 | 3Z12073-47.25 |
| E509 | TERMINAL, lug: same as E127. | 304 0015 00 | 3Z12073-47.25 |
| E510 | TERMINAL, lug: round tongue end; 0.078 in. dia hole for wire; 0.025 in. thk by 1/4 in. w by 0.687 in. lg approx bent at 60°; Zierick #T957. | 304 0045 00 | 3Z12073-46.8 |
| E511 | TERMINAL, lug: same as E127. | 304 0015 00 | 3Z12073-47.25 |
| E512 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E513 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E514 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| E515 | INSERT, ELECTRON TUBE SOCKET: same as E129. | 541 6532 003 | |
| J502 | CONNECTOR, receptacle: same as J101. | 357 9256 00 | |
| J503 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J505 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J506 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J507 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J508 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| J509 | CONNECTOR, plug: 7 rd male cont; pol; straight type; Cinch #54B11931. | 372 1053 00 | 2Z3027-52 |
| L502 | COIL, RF: choke; same as L501. | 240 0312 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| L501 | COIL, RF: choke; 3 or 4 universal pi wnd; 5.0 uh; National Coil Co. | 240 0312 00 | |
| P501 | CONNECTOR, plug: same as P101. | 372 1044 00 | 2Z3034-60 |
| P509 | SOCKET, TUBE: 7 contact, bottom mounting uhf type miniature; JAN-S-28A, MIL-P-14; Cinch Mfg. | 044 0346 97 | |
| R501 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R502 | RESISTOR, fixed: composition; same as R323. | 745 1328 00 | |
| R503 | RESISTOR, fixed: composition; RC20GF473K; 47,000 ohms ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1422 00 | 3RC20GF473K |
| R504 | RESISTOR, fixed: composition; same as R303. | 745 1405 00 | 3RC20GF183K |
| R505 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R506 | RESISTOR, fixed: composition; same as R323. | 745 1328 00 | |
| R507 | RESISTOR, fixed: composition; same as R503. | 745 1422 00 | 3RC20GF473K |
| R508 | RESISTOR, fixed: composition; same as R303. | 745 1405 00 | 3RC20GF183K |
| R509 | RESISTOR, fixed: same as R107. | 745 1436 00 | 3RC20GF104K |
| R510 | RESISTOR, fixed: composition; same as R323. | 745 1328 00 | |
| R511 | RESISTOR, fixed: composition; same as R503. | 745 1422 00 | 3RC20GF473K |
| R512 | RESISTOR, fixed: composition; RC20GF222K; 2200 ohms ±10%; 1/2 w power dissipation MIL-R-11. | 745 1366 00 | 3RC20GF222K |
| R514 | RESISTOR, fixed: composition; same as R512. | 745 1366 00 | 3RC20GF222K |
| R515 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| R516 | RESISTOR, fixed: composition; RC20GF822K; 8200 ohms ±10%; 1/2 w power dissipation MIL-R-11. | 745 1391 00 | |
| R517 | RESISTOR, fixed: composition; same as R407. | 745 1401 00 | 3RC20GF153K |
| R518 | RESISTOR, fixed: composition; same as R303. | 745 1405 00 | 3RC20GF183K |
| R519 | RESISTOR, fixed: composition; RC20GF224K; 0.22 meg ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1450 00 | 3RC20GF224K |
| R520 | RESISTOR, fixed: composition; RC20GF564K; 0.56 meg ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1468 00 | 3RC20GF564K |
| R525 | RESISTOR, fixed: composition; same as R519. | 745 1450 00 | 3RC20GF224K |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| R526 | RESISTOR, fixed: composition; same as R203. | 745 1324 00 | 3RC20GF221K |
| R527 | RESISTOR, fixed: composition; RC20GF123K; 12,000 ohms ±10%; 1/2 w power dissipation. | 745 1398 00 | 3RC20GF123K |
| R528 | RESISTOR, fixed: composition; same as R208. | 745 1408 00 | 3RC20GF223K |
| R529 | RESISTOR, fixed: composition; RC20GF683K; 68,000 ohms ±10%; 1/2 w power dissipation; MIL-R-11. | 745 1429 00 | 3RC20GF683K |
| R530 | RESISTOR, fixed: composition; same as R107. | 745 1436 00 | 3RC20GF104K |
| R531 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| R532 | RESISTOR, fixed: composition; same as R107. | 745 1436 00 | 3RC20GF104K |
| R533 | RESISTOR, fixed: composition; same as R519. | 745 1450 00 | 3RC20GF224K |
| R537 | RESISTOR, fixed: composition; same as R101. | 745 1415 00 | 3RC20GF333K |
| T501 | TRANSFORMER: 500 kc toroidal transformer; Communications Accessories. | 044 0031 678 | |
| TB501 | BOARD, terminal: c/o 10 standoff and 8 feedthru terminals soldered to plate; 0.484 in. h by 1-1/2 in. w by 2-21/32 in. lg approx o/a. | 593 1762 003 | |
| V501 | TUBE, ELECTRON: same as V202. | 254 0846 00 | 2J5654/6AK5W |
| V502 | TUBE, ELECTRON: same as V202. | 254 0846 00 | 2J5654/6AK5W |
| V503 | TUBE, ELECTRON: same as V202. | 254 0846 00 | 2J5654/6AK5W |
| V504 | TUBE, ELECTRON: same as V202. | 254 0846 00 | 2J5654/6AK5W |
| W501 | CABLE ASSEMBLY, power: 3rd if. ampl; c/o 14 pin connector w/ bracket, retaining spring, connector shield, wire and hdwe; 9/16 in. w by 2-3/32 in. h by 4-3/4 in. lg o/a dim excluding terminal. | 593 0821 003 | |
| XV501 | SOCKET, tube: same as XV101. | 220 1273 00 | |
| XV502 | SOCKET, tube: same as XV101. | 220 1273 00 | |
| XV503 | SOCKET, tube: same as XV101. | 220 1273 00 | |
| XV504 | SOCKET, tube: same as XV101. | 220 1273 00 | |
| C601 | CAPACITOR, fixed: paper; 0.22 mf ±20%; 400 vdcw; Sprague #96P22404S4 (special). | 931 2562 00 | |
| C602 | CAPACITOR, fixed: paper; same as C601. | 931 2562 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C603 | CAPACITOR, fixed: electrolytic; 25 mf -15% +50%; 125 vdcw; polarized; Fansteel #PP25B125C2. | 184 7101 00 | |
| C604 | CAPACITOR, fixed: electrolytic; same as C603. | 184 7101 00 | |
| C605 | CAPACITOR, fixed: electrolytic; same as C603. | 184 7101 00 | |
| C606 | CAPACITOR, fixed: electrolytic; same as C603. | 184 7101 00 | |
| C607 | CAPACITOR, fixed: electrolytic; same as C603. | 184 7101 00 | |
| C608 | CAPACITOR, fixed: electrolytic; same as C603. | 184 7101 00 | |
| C609 | CAPACITOR, fixed: electrolytic; same as C603. | 184 7101 00 | |
| C610 | CAPACITOR, fixed: electrolytic; 100 mf -15% +50%; 30 vdcw; Fansteel #PP100B30A2. | 184 7103 00 | |
| C611 | CAPACITOR, fixed: electrolytic; 4 mf -15% +50% tol; 60 vdcw; polarized; Fansteel #PP4B60A2. | 184 7000 00 | 3DB4-405 |
| C612 | CAPACITOR, fixed: electrolytic; same as 611. | 184 7000 00 | 3DB4-405 |
| E601 | TERMINAL, lug: phosphor bronze; 0.018 in. by 5/16 in. by 11/16 in. over-all; Shakeproof 2102-4. | 304 3110 00 | 3Z12073-41.17 |
| E602 | INSULATOR, standoff: brass terminal, molded melamine body, 4-40 NC-2 tapped insert; De Jur Amsco Cat. no. ST-1050-34. | 306 0091 00 | 3Z12101-9.3 |
| E603 | INSULATOR, standoff: same as E602. | 306 0091 00 | 3Z12101-9.3 |
| E604 | INSULATOR, standoff: same as E602. | 306 0091 00 | 3Z12101-9.3 |
| E605 | INSULATOR, standoff: same as E602. | 306 0091 00 | 3Z12101-9.3 |
| E606 | INSULATOR, standoff: same as E602. | 306 0091 00 | 3Z12101-9.3 |
| E607 | INSULATOR, standoff: same as E602. | 306 0091 00 | 3Z12101-9.3 |
| E608 | TERMINAL, lug: phosphor bronze; 0.018 in. by 5/16 in. by 23/32 in. over-all; Shakeproof 2102-6. | 304 3120 00 | 3Z12059-58 |
| E609 | INSULATOR, standoff: rectangular shape; nylon per MIL-P-17091B; 3/8 in., 21/32 in. 1-1/8 in. over-all, two 4-40NC-2B holes spaced 1/2 in. c to c for mtg. | 593 0769 002 | |
| J601 | CONNECTOR, receptacle: electrical; 10 contacts; 5 amps; phenolic; straight shape; Amphenol cat.no. 143-010-01. | 372 1582 00 | |
| K601 | RELAY, armature: contact arrangement 6 form C; 2 amp 29 vdc; polladium contacts; 26.5 vdc coil; 300 ohms (cont) | 974 0525 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| K601 | (cont) ±10% coil resistance; Allied Control #MHBUO-18D | | |
| K602 | RELAY, armature: contact arrangement 4 form C; 2 amp, 29 vdc; polladium cont; 26.5 vdc coil; 240 ohms ±10% coil resistance; Allied Control #MHBVO-12D. | 974 0524 00 | |
| L601 | REACTOR: 10 henries min at 50 v rms, 1000 cps, 15 ma dc; 300 ohms max at 25°C; Chicago Std Trans type 24626. | 044 0001 678 | |
| L602 | REACTOR: filter; 1.5 hy min at 10 v rms; 60 cps; 70 ohms dc resistance; 130 ma cur. | 044 3185 01 | |
| P601 | CONNECTOR, plug: twenty rd male cont; polarized; straight type; 5 amp, 300 vac rms; Winchester Electric #MRE20P-G. | 372 1531 00 | |
| P602 | CONNECTOR, plug: same as P601. | 372 1531 00 | |
| R601 | RESISTOR, fixed: composition; RC20GF241J; 240 ohms ±5%; 1/2 w power dissipation. | 745 1326 00 | |
| R602 | RESISTOR, fixed: composition; RC20GF273K; 27,000 ohms ±10%; 1/2 w power dissipation MIL-R-11. | 745 1412 00 | 3RC20GF273K |
| R603 | RESISTOR, fixed: wire wound; 400 ohms ±3%; 2 w; Dale Products type RS-2. | 747 9326 00 | |
| R604 | RESISTOR, fixed: wire wound; same as R603. | 747 9326 00 | |
| R605 | RESISTOR, fixed: wire wound; 50 ohms ±3%; 2 w; Sage Elec type Silicohm. | 747 9647 00 | |
| R606 | RESISTOR, fixed: wire wound; 560 ohm ±3%; 2 w; Dale Prod S33-561. | 747 9304 00 | |
| R607 | RESISTOR, fixed: composition; RC09GF334K; 0.33 ohms ±10%; 1/4 w power dissipation. | 745 0457 00 | |
| R608 | RESISTOR, fixed: composition; same as R607. | 745 0457 00 | |
| R609 | RESISTOR, fixed: composition; same as R607. | 745 0457 00 | |
| R610 | RESISTOR, fixed: composition; same as R607. | 745 0457 00 | |
| R611 | RESISTOR, fixed: composition; same as R607. | 745 0457 00 | |
| R612 | RESISTOR, fixed: composition; same as R607. | 745 0457 00 | |
| R613 | RESISTOR, fixed: composition; same as R607. | 745 0457 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| R614 | RESISTOR, fixed: composition; MIL #RC32GF562K; 5600 ohms ±10% tol; 1 w power dissipation; MIL-R-11. | 745 3384 00 | |
| TB601 | PRINTED CIRCUIT: glass base epoxy laminate 1/16 in. thk w/ 2 oz (0.0027 in.) thk copper cladding both sides; 1.843 in. by 2.250 in. o/a. | 593 0782 003 | |
| W601 | CABLE ASSEMBLY, special purpose: c/o two 20 pin connectors, wire and nylon cord; 0.906 in. w by 1.562 in. h by 11.812 in. lg approx o/a dim excl terminals. | 593 0791 004 | |
| XK601 | SOCKET, relay: 20 contact; top mtg; phenolic ins; copper cont; saddle mtd; Allied Control #16125.2. | 220 1231 00 | |
| XK602 | SOCKET, relay: 14 contact, top mtg; phenolic ins; copper cont; saddle mtd; Allied Control #16124-2. | 220 1232 00 | |
| Z601 | FILTER, capacitor: c/o insulator cemented to capacitor cover, capacitor filter, 3 split-lock no. 4 washers, 3 no. 4-40 by 1/8 screws; 1-25/32 in. w by 2-9/16 in. lg. | 593 0778 002 | |
| E701 | INSULATOR, standoff: same as E602. | 306 0091 00 | 3Z12101-9.3 |
| E702 | INSULATOR, standoff: same as E602. | 306 0091 00 | 3Z12101-9.3 |
| E703 | TERMINAL, lug: same as E418. | 505 5039 001 | 3Z12073-46.7 |
| E704 | TERMINAL, lug: same as E418. | 505 5039 001 | 3Z12073-46.7 |
| E705 | TERMINAL, lug: same as E418. | 505 5039 001 | 3Z12073-46.7 |
| E706 | TERMINAL, STUD: same as E22. | 306 0322 00 | |
| E707 | TERMINAL, STUD: same as E22. | 306 0322 00 | |
| F701 | FUSE, CARTRIDGE: 250 vdc, 0.500 amp; 0.250 in. dia by 1-1/4 in. lg; Littlefuse #312.500. | 264 4030 00 | |
| F702 | FUSE, CARTRIDGE: 250 vdc, 0.250 amp; 0.250 in. dia by 1-1/4 in. lg; Little fuse #312.250. | 264 4020 00 | 3Z2587 |
| F703 | FUSE, CARTRIDGE: 5 amp, 32 vdc; 0.250 in. dia by 1-1/4 in. lg; Bussman type MDL. | 264 0010 00 | |
| F704 | FUSE, CARTRIDGE: 32 vdc, 30 amp; 0.250 in. dia by 1-1/4 in. lg; Buss type MDL. | 264 0114 00 | |
| FL701 | SUPPRESSOR, electrical noise: capacitor and coil type; 15.0 uh; 500 v; brass, cylindrical case. | 593 0387 002 | |
| FL702 | SUPPRESSOR, electrical noise: same as FL701. | 593 0387 002. | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| FL703 | SUPPRESSOR, electrical noise: same as FL701. | 593 0387 002 | |
| FL704 | SUPPRESSOR, electrical noise: same as FL701. | 593 0387 002 | |
| FL705 | SUPPRESSOR, electrical noise: same as FL701. | 593 0387 002 | |
| FL706 | SUPPRESSOR, electrical noise: same as FL701. | 593 0387 002 | |
| FL707 | SUPPRESSOR, electrical noise: same as FL701. | 593 0387 002 | |
| I701 | LAMP, glow: 28 v; 0.04 amp; T-1-3/4 bulb; midget flange base; G.E. Mazda #327. | 262 0179 00 | 6Z6828-4 |
| I702 | LAMP, glow: same as I701. | 262 0179 00 | 6Z6828-4 |
| I703 | LAMP, glow: same as I701. | 262 0179 00 | 6Z6828-4 |
| J701 | CONNECTOR, adapter: w/ two female contacts; copper contacts, teflon ins; Amphenol #31-22U. | 357 9128 00 | 2Z308-492A |
| J702 | CONNECTOR, receptacle: 10 female, brass, silver plated cont; Amphenol #164-7. | 369 1014 00 | |
| J703 | CONNECTOR, receptacle: same as J702. | 369 1014 00 | |
| M701 | METER: dc micro ammeter; 0-100 ua; sq case; ±3% accuracy for full scale reading; black markings on white w/ red block. | 044 2523 98 | |
| P701 | CONNECTOR, plug: 34 male cont; polarized; 5 amp, 300 vac; panel mtg; Winchester #MRE34P-G. | 372 1048 00 | |
| P702 | CONNECTOR, plug: 41 male cont; pol; straight type; 5 amp, 300 vac rms max; Winchester Elect #MRE41P-G. | 372 1533 00 | |
| P703 | CONNECTOR, plug: same as P601. | 372 1531 00 | |
| R701 | RESISTOR, fixed: composition; MIL #RC32GF122K; 1200 ohms ±10% tol; 1 w power dissipation; MIL-R-11. | 745 3356 00 | |
| R702 | RESISTOR, fixed: composition; same as R701. | 745 3356 00 | |
| R703 | RESISTOR, fixed: film; MIL #RN20X5363F; 536,000 ohms ±1%; 1/2 w; MIL-R-10509. | 705 2301 00 | |
| R704 | RESISTOR, fixed: composition; MIL #RC20GF273J; 27,000 ohms ±5%; 1/2 w power dissipation; MIL-R-11. | 745 1411 00 | |
| R705 | RESISTOR, fixed: film; #RN25X1654F; 1,650,000 ohms, ±1%, 1 w; MIL-R-10509. | 705 3021 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| R706 | RESISTOR, fixed: film; MIL #RN20X7503F; 0.750 ohms ±1%; 1/2 w power dissipation; MIL-R-10509. | 705 2200 00 | |
| R707 | RESISTOR, fixed: film; RN20X4120F; 412 ohms, ±1%, 1/2 w; MIL-R-10509. | 705 2376 00 | |
| R708 | RESISTOR, fixed: film; RN20X4640F; 464 ohms; ±1%, 1/2 w; MIL-R-10509. | 705 2312 00 | |
| R709 | RESISTOR, fixed: composition; MIL #RC20GF271J; 270 ohms ±5% tol; 1/2 w power dissipation; MIL-R-11. | 745 1327 00 | |
| R710 | RESISTOR, variable: composition; section 1, 1500 ohms, section 2, 1500 ohms; section 1 ±20%, section 2 ±20%; 1 w; Chicago Fel Supply type 2-90. | 044 0002 380 | |
| R711 | RESISTOR, variable: composition; 5000 ohms ±20% 20 C log taper; 1/2 w; CTS type 90. | 380 7385 00 | |
| R712 | RESISTOR, variable: composition; 25,000 ohms; ±20% tol; 0.08 to 0.33 w power rating; Allen Bradley type G. | 380 1651 00 | |
| R713 | RESISTOR, fixed: composition; #RC42GF393K; 39000 ohms, ±10%, 2 w; MIL-R-11. | 745 5719 00 | 3RC42GF393K |
| R714 | RESISTOR, variable: composition; same as R710. | 044 0002 380 | |
| R715 | RESISTOR, fixed: composition, same as R208. | 745 1408 00 | 3RC20GF223K |
| S701 | SWITCH, rotary wafer: 1 pole; 3 position; 1 section; spring return both ways to center; 30° detent; spring silver clips; Oak Mfg, type F. | 044 5813 97 | |
| S702 | RESISTOR, variable: composition; same as R711. | 380 7385 00 | |
| S703 | SWITCH, push: single pole; 17 amps, 24 dc; 15 amps, 115 ac; 7.5 amps, 230 ac; momentary contact, normally open; Hetherington & Son, p/n NA401B4. | 044 0003 266 | |
| S704 | SWITCH, rotary wafer; 2 pole, 12 position; 2 sections with 30° detent and no stops; Spring silver clips; Rotor blades coil silver; Oak Mfg, type F. | 044 5814 97 | |
| S705 | SWITCH ASSEMBLY: c/o 3 sensitive switches, 2 rotary switches; spring, cam, bracket, 2 shafts, follower arm and assorted hardware; (incl S705 A, B, C, D, and E). | 593 1464 003 | |
| S706 | SWITCH, rotary: 2 moving, 21 fixed contacts; 1 pole, 20 positions; spring silver clips; coin silver rotor blades; 1-15/32 in. by 1-23/32 in. by 1-29/32 in.; Oak type RK. | 044 0004 259 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| S707 | SWITCH, rotary: 2 moving, 11 fixed contacts; 1 pole, 12 position; spring silver clips, coin silver rotor blades; 1-1/4 in. by 1-5/16 in. by 1-13/32 in.; Oak type F. | 044 0005 259 | |
| S708 | SWITCH, rotary: same as S707. | 044 0005 259 | |
| W701 | CABLE ASSEMBLY: front panel; c/o 41 pin connector, wire and nylon lacing cord; incl P702. | 593 1443 00 | |
| W702 | CABLE ASSEMBLY: front panel; c/o 34 pin connector, nylon lacing cord, wire and assorted hdwe; incl P701. | 593 1444 00 | |
| W703 | | 2972A17118 | |
| XF701 | HOLDER, fuse: extractor post type; for four 1-1/4 in. by 1/4 in. fuses; phenolic; 1.125 in. w by 2.187 in. lg by 2.093 in. h. | 044 0001 265 | |
| XI701 | LIGHT, indicator: brass, nickel plated; 0.562 in. dia by 1.312 in. lg o/a; mounts by one hex nut and one internal tooth lockwasher; Hetherington and Son type no. L1000. | 044 0001 262 | |
| XI702 | LIGHT, indicator: ferrous, cadmium plated; 3/4 in. across hex by 1.291 in. o/a. | 044 0421 97 | |
| XI703 | LIGHT, indicator: same as X1702. | 044 0421 97 | |
| C801 | CAPACITOR, fixed: same as C201. | 913 0146 00 | |
| C802 | CAPACITOR, fixed: electrolytic; same as C524. | 184 7001 00 | |
| C803 | CAPACITOR, fixed: paper, 4700 uuf ±20%, 100 vdcw; Sprague type no. 96P-S4. | 931 2495 00 | |
| C804 | CAPACITOR, fixed: paper, 10,000 uuf ±20%, 100 vdcw; Sprague Cat. no. P64511. | 931 2497 00 | |
| C805 | CAPACITOR, fixed: mica; same as C410. | 912 0544 00 | 3D9510-30 |
| C806 | CAPACITOR, fixed: mica; 180 mmf ±2% tol; 500 vdcw; Electro Motive #CM15E181G. | 912 0511 00 | 3D9180-38 |
| C807 | CAPACITOR, fixed: mica; same as C410. | 912 0544 00 | 3D9510-30 |
| C808 | CAPACITOR, fixed: electrolytic; same as C524. | 184 7001 00 | |
| C809 | CAPACITOR, fixed: paper; 0.022 mf ±20% tol; 100 vdcw; hi-temp impreg; Sprague #96P22301S4. | 931 2499 00 | |
| C810 | CAPACITOR, fixed: electrolytic; same as C611. | 184 7000 00 | 3DB4-405 |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C811 | CAPACITOR, fixed: electrolytic; 8 mf -15% +50% tol; 30 vdcw; polarized; Fansteel #PP8B30A2. | 184 7003 00 | |
| C812 | CAPACITOR, fixed: paper; 220,000 uuf ±20%, 200 vdcw; Sprague type no. 86P-S5. | 931 0609 00 | |
| C813 | CAPACITOR, fixed: paper dielectric 22,000 uuf ±20%, 300 vdcw; Sprague. | 931 4524 00 | |
| C814 | CAPACITOR, fixed: electrolytic; same as C811. | 184 7003 00 | |
| C815 | CAPACITOR, fixed: electrolytic; same as C611. | 184 7000 00 | 3DB4-405 |
| C816 | CAPACITOR, fixed: electrolytic: 60 mf -15% +50% tol; 50 vdcw; polarized; Fansteel #PP60B50A2. | 184 7102 00 | |
| C817 | CAPACITOR, fixed: mica; same as C410. | 912 0544 00 | 3D9510-30 |
| CR801 | RECTIFIER: same as CR501. | 353 0197 00 | |
| CR802 | RECTIFIER: same as CR501. | 353 0197 00 | |
| E801 | SHIELD, tube: 9 pin noval; cylindrical w/ flared end; brass; 0.950 in. by 1.065 in. by 1-1/2 in. | 541 6553 003 | |
| E802 | SHIELD, tube: 9 pin noval; cylindrical w/ flared end; brass; 0.950 in. by 1.065 in. by 1-1/2 in. | 541 6553 003 | |
| E803 | SHIELD, electron tube: same as E202. | 541 6550 003 | |
| E804 | SHIELD, tube: 9 pin noval; cylindrical w/ flared end; brass; 0.950 in. by 1.065 in. by 1-1/2 in. | 541 6553 003 | |
| E805 | INSERT, electron tube socket: same as E226. | 541 6533 003 | |
| E806 | INSERT, electron tube socket: same as E226. | 541 6533 003 | |
| E807 | INSERT, electron tube socket: same as E129. | 541 6532 003 | |
| E808 | INSERT, electron tube socket: same as E226. | 541 6533 003 | |
| E809 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E810 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E811 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E812 | TERMINAL, lug: phosphor bronze; same as E113. | 304 0318 00 | |
| E813 | TERMINAL, lug: phosphor bronze; same as E113. | 304 0318 00 | |
| E814 | TERMINAL, lug: phosphor bronze; same as E113. | 304 0318 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| E815 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E816 | TERMINAL, lug: same as E12. | 304 0317 00 | |
| E817 | TERMINAL, lug: brass, hot tin dipped; 23/32 in. lg by 13/32 in. w by 0.015 in. thk o/a; one 0.125 in. dia hole one end and 0.250 in. dia hole other end. | 593 1887 002 | |
| E818 | TERMINAL, stud: same as E22. | 306 0322 00 | |
| E819 | TERMINAL, stud: same as E22. | 306 0322 00 | |
| E820 | TERMINAL, stud: same as E22. | 306 0322 00 | |
| E821 | TERMINAL, stud: same as E22. | 306 0322 00 | |
| E822 | TERMINAL, stud: same as E22. | 306 0322 00 | |
| E823 | TERMINAL, stud: same as E22. | 306 0322 00 | |
| E824 | TERMINAL, stud: same as E22. | 306 0322 00 | |
| E825 | TERMINAL, stud: same as E22. | 306 0322 00 | |
| E826 | TERMINAL, stud: same as E22. | 306 0322 00 | |
| E827 | TERMINAL, stud: same as E22. | 306 0322 00 | |
| E828 | TERMINAL, stud: same as E22. | 306 0322 00 | |
| E832 | TERMINAL, lug: phosphor bronze: same as E113. | 304 0318 00 | |
| E833 | INSULATOR, plate: rectangular shape; teflon; 1-1/4 in. w by 2-3/16 in. lg; two 5/16 in. dia mtg holes each end. | 593 1842 001 | |
| J801 | CONNECTOR, receptacle: same as J103. | 360 0077 00 | |
| K801 | RELAY, armature: contact arrangement 1A, 1A, 2C; 0.5 amp at 150 vdc; C.P. Clare type RP. | 044 0652 99 | |
| K802 | RELAY, armature: same as K601. | 974 0525 00 | |
| L801 | COIL, RF: toroid; encapsulated type; single wnd; 400 ohms dc resistance at 2000 mh; Communications Accessories #MP-206-35-B. | 240 0291 00 | |
| P801 | CONNECTOR, plug: same as P702. | 372 1533 00 | |
| R801 | RESISTOR, fixed: composition; same as R602. | 745 1412 00 | 3RC20GF273K |
| R802 | RESISTOR, fixed: composition; same as R516. | 745 1391 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| R803 | RESISTOR, fixed: composition; same as R303. | 745 1405 00 | 3RC20GF183K |
| R804 | RESISTOR, fixed: composition; same as R503. | 745 1422 00 | 3RC20GF473K |
| R805 | RESISTOR, variable: composition; 1 megohm, ±20% tol; 0.08 to 0.33 w power rating; Allen Bradley type G. | 380 1655 00 | |
| R806 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| R807 | RESISTOR, fixed: composition; MIL #RC20GF472J; 4700 ohms, ±5%; 1/2 w power dissipation; MIL-R-11. | 745 1379 00 | 3RC20GF472J |
| R808 | RESISTOR, fixed: composition; MIL #RC20GF334J; 330,000 ohms, ±5%; 1/2 w; MIL-R-11. | 745 1456 00 | |
| R809 | RESISTOR, fixed: composition; RC20GF391K; 390 ohms, ±10%, 1/2 w; MIL-R-11. | 745 1335 00 | 3RC20GF391K |
| R810 | RESISTOR, fixed: composition MIL #RC20GF562K; 5600 ohms ±10% tol; 1/2 w power dissipation; MIL-R-11. | 745 1384 00 | |
| R811 | RESISTOR, fixed: composition; same as R209. | 745 1433 00 | 3RC20GF823K |
| R812 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| R813 | RESISTOR, fixed: composition; same as R209. | 745 1433 00 | 3RC20GF823K |
| R814 | RESISTOR, fixed: composition; same as R320. | 745 1380 00 | 3RC20GF472K |
| R815 | RESISTOR, fixed: film; same as R706. | 705 2200 00 | |
| R816 | RESISTOR, fixed: film; RN20X1824F; 1.82 meg ±1%; 1/2 w; MIL-R-10509. | 705 2209 00 | |
| R817 | RESISTOR, fixed: composition; MIL #RC32GF1S1K; 150 ohms ±10% tol; 1 w power dissipation; MIL-R-11. | 745 3317 00 | |
| R818 | RESISTOR, fixed: same as R101. | 745 1415 00 | 3RC20GF333K |
| R819 | RESISTOR, fixed: composition; RC20GF274K; 270,000 ohms ±10%; 1/2 w; MIL-R-11. | 745 1454 00 | 3RC20GF274K |
| R820 | RESISTOR, fixed: composition; same as R209. | 745 1433 00 | 3RC20GF823K |
| R821 | RESISTOR, fixed: composition; RC20GF681K; 680 ohms, ±10%; 1/2 w; MIL-R-11. | 745 1345 00 | 3RC20GF681K |
| R822 | RESISTOR, fixed: composition; same as R207. | 745 1440 00 | 3RC20GF124K |
| R823 | RESISTOR, fixed: composition; same as R207. | 745 1440 00 | 3RC20GF124K |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| R824 | RESISTOR, fixed: composition; same as R529. | 745 1429 00 | 3RC20GF683K |
| R825 | RESISTOR, fixed: composition; same as R529. | 745 1429 00 | 3RC20GF683K |
| R826 | RESISTOR, variable: composition; 250,000 ohms ±20%, 0.5 w; AB. | 380 1658 00 | |
| R827 | RESISTOR, fixed: composition; RC20GF821K; 820 ohms ±10%, 1/2 w; MIL-R-11. | 745 1349 00 | |
| R828 | RESISTOR, fixed: wirewound; 400,000 ohms, ±1%; 2 w; Sage Elec Corp type Silicohm. | 747 9623 00 | |
| R830 | RESISTOR, fixed: composition; RC20GF563K; 56000 ohms ±10% tol; 1/2 w power dissipation; MIL-R-11. | 745 1426 00 | 3RC20GF563K |
| R831 | RESISTOR, variable: composition; same as R712. | 380 1651 00 | |
| R832 | RESISTOR, fixed: composition; same as R208. | 745 1408 00 | 3RC20GF223K |
| R833 | RESISTOR, fixed: composition; same as R304. | 745 1351 00 | |
| R834 | RESISTOR, fixed: wirewound; 133,000 ohms ±3%, 2 w; Sage Electric Corp type Silicohm. | 747 9638 00 | |
| R835 | RESISTOR, fixed: wirewound; 240 ohms, ±3%, 2 w; Sage Electric Corp type Silicohm. | 747 9306 00 | |
| R836 | RESISTOR, fixed: wirewound; same as R828. | 747 9623 00 | |
| R837 | RESISTOR, fixed: composition; same as R715. | 745 1419 00 | 3RC20GF393K |
| R838 | RESISTOR, fixed: wirewound; 1.2 ohms, ±1%; 2 w; Sage Electric Corp type Silicohm. | 747 9649 00 | |
| R839 | RESISTOR, fixed: wirewound; 182,000 ohms ±1%, 2 w; Sage Electric Corp type Silicohm. | 747 9650 00 | |
| R840 | RESISTOR, fixed: composition; RC20GF221J; 220 ohms ±5%, 1/2 w; MIL-R-11. | 745 1323 00 | |
| R841 | RESISTOR, fixed: composition; RC20GF103J; 10,000 ohms ±5%; 1/2 w; MIL-R-11. | 745 1393 00 | 3RC20GF103J |
| T801 | TRANSFORMER, audio frequency: interstage type; 2 windings; primary, 25,000 ohms; secondary, 900 ohms; primary 98 vac, 8 ma dc; secondary 8.2 vac at 5 ma dc. | 044 3395 01 | |
| T802 | TRANSFORMER, AF: modulation and output type; 29 w operating level; 192 ohms primary dc resistance; 30 ohms and 100 ohms secondary dc resistance; frequency range 100 to 25,000 cps; 3 db attenuation. | 044 3542 01 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| TB801 | BOARD, terminal: no. 1; c/o 24 terminal posts staked to terminal board; 0.937 in. w by 4.203 in. lg by 0.468 in. h approx o/a. | 593 1180 003 | |
| TB802 | BOARD, terminal; no. 2; c/o 16 terminals staked to board; 15/16 in. w by 4-1/16 in. lg by 0.375 in. h approx o/a. | 593 1170 002 | |
| TB803 | BOARD, terminal: no. 3; c/o 18 terminals rolled to board; 0.2968 in. h by 1.250 in. w by 2.187 in. lg o/a | 593 1171 002 | |
| V801 | TUBE, electron: same as V201. | 254 0852 00 | 2J5670 |
| V802 | TUBE, electron: same as V201. | 254 0852 00 | 2J5670 |
| V803 | TUBE, electron: same as V202. | 254 0846 00 | 2J5654/6AK5W |
| V804 | TUBE, electron: same as V201. | 254 0852 00 | 2J5670 |
| V805 | TUBE, electron: glass envelope; cathode #5763; MIL-E-1B | 254 0817 00 | 2J5763 |
| V806 | TUBE, electron: same as V805. | 254 0817 00 | 2J5763 |
| V807 | TUBE, electron: same as V805. | 254 0817 00 | 2J5763 |
| V808 | TUBE, electron: same as V805. | 254 0817 00 | 2J5763 |
| W801 | CABLE, special purpose: modulator; c/o wire, lacing cord and insulation. | 593 1165 00 | |
| XK801 | SOCKET, tube: 14 contact; above chassis mtg; mica filled phenolic body; copper cont; Amphenol #59-106. | 220 1166 00 | |
| XK802 | SOCKET, relay: same as XK601. | 220 1231 00 | |
| XV801 | SOCKET, tube: same as XV201. | 220 1244 00 | |
| XV802 | SOCKET, tube: same as XV201. | 220 1244 00 | |
| XV803 | SOCKET, tube: same as XV101. | 220 1273 00 | |
| XV804 | SOCKET, tube: same as XV201. | 220 1244 00 | |
| XV805 | SOCKET, tube: 9 pin bottom mtg w/ uhf type cont and type MFE phenolic insulation; Elco Corp. | 044 0520 51 | |
| XV806 | SOCKET, tube: same as XV805. | 044 0520 51 | |
| XV807 | SOCKET, tube: same as XV805. | 044 0520 51 | |
| XV808 | SOCKET, tube: same as XV805. | 044 0520 51 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C901 | CAPACITOR, fixed: mica; 200 mmf ±2%; 500 vdcw; Electro Motive #CM15E201G. | 912 0514 00 | 3D9200-109 |
| C902 | CAPACITOR, fixed: mica; 51 mmf ±2%; 500 vdcw; Electro Motive #CM15E510G. | 912 0472 00 | 3D9051-86 |
| C903 | CAPACITOR, fixed: mica; 430 mmf ±2%; 300 vdcw; Electro Motive #CM15E431G. | 912 0538 00 | 3D9430-5 |
| C904 | CAPACITOR, fixed: mica; same as C902. | 912 0472 00 | 3D9051-86 |
| C905 | CAPACITOR, fixed: mica; same as C903. | 912 0538 00 | 3D9430-5 |
| C906 | CAPACITOR, fixed: mica; same as C902. | 912 0472 00 | 3D9051-86 |
| C907 | CAPACITOR, fixed: mica; same as C903. | 912 0538 00 | 3D9430-5 |
| C908 | CAPACITOR, fixed: mica; same as C902. | 912 0472 00 | 3D9051-86 |
| C909 | CAPACITOR, fixed: mica; same as C903. | 912 0538 00 | 3D9430-5 |
| C910 | CAPACITOR, fixed: mica; same as C902. | 912 0472 00 | 3D9051-86 |
| C911 | CAPACITOR, fixed: mica; same as C903. | 912 0538 00 | 3D9430-5 |
| C912 | CAPACITOR, fixed: mica; same as C902. | 912 0472 00 | 3D9051-86 |
| C913 | CAPACITOR, fixed: mica; same as C903. | 912 0538 00 | 3D9430-5 |
| C914 | CAPACITOR, fixed: mica; same as C902. | 912 0472 00 | 3D9051-86 |
| C915 | CAPACITOR, fixed: mica; same as C903. | 912 0538 00 | 3D9430-5 |
| C916 | CAPACITOR, fixed: mica; same as C902. | 912 0472 00 | 3D9051-86 |
| C917 | CAPACITOR, fixed: mica; same as C806. | 912 0511 00 | 3D9180-38 |
| C918 | CAPACITOR, fixed: ceramic; same as C321. | 913 0996 00 | 3DA3-151 |
| E901 | TERMINAL, lug: copper or brass; 0.016 in. by 5/16 in. by 3/4 in.; Sherman Cat. no. 38. | 304 8000 00 | 3Z12073-45.11 |
| E902 | TERMINAL, lug: same as E901. | 304 8000 00 | 3Z12073-45.11 |
| E903 | TERMINAL, lug: same as E901. | 304 8000 00 | 3Z12073-45.11 |
| E904 | TERMINAL, lug: same as E901. | 304 8000 00 | 3Z12073-45.11 |
| E905 | TERMINAL, lug: same as E901. | 304 8000 00 | 3Z12073-45.11 |
| E906 | TERMINAL, lug: same as E901. | 304 8000 00 | 3Z12073-45.11 |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| E907 | TERMINAL, lug: same as E901. | 304 8000 00 | 3Z12073-45.11 |
| E908 | TERMINAL, lug: same as E901. | 304 8000 00 | 3Z12073-45.11 |
| E909 | TERMINAL, lug: same as E901. | 304 8000 00 | 3Z12073-45.11 |
| E910 | INSULATOR, standoff: same as E102. | 306 0413 00 | |
| E911 | INSULATOR, standoff: same as E102. | 306 0413 00 | |
| E912 | SPRING, grounding; phosphor bronze; bright alloy plate; rectangular shape; 0.008 in. by 11/32 in. by 3/4 in. ea end bent to 60° angle 9/32 in. from c. | 593 0303 002 | |
| E913 | SPRING, grounding: same as E912. | 593 0303 002 | |
| E914 | SPRING, grounding: same as E912. | 593 0303 002 | |
| E915 | SPRING, grounding: same as E912. | 593 0303 002 | |
| E916 | SPRING, grounding: same as E912. | 593 0303 002 | |
| E917 | SPRING, grounding: same as E912. | 593 0303 002 | |
| E918 | SPRING, grounding: same as E912. | 593 0303 002 | |
| E919 | SPRING, grounding: same as E912. | 593 0303 002 | |
| E920 | SPRING, grounding: same as E912. | 593 0303 002 | |
| L901 | COIL, subassembly: c/o tuning core, cup core, shield can, header and coil; 1.375 in. lg by 0.7968 in. dia o/a. | 593 0311 003 | |
| L902 | COIL, subassembly: c/o tuning core; cap core; shield core; header and coil; 1.375 in. lg x 0.7968 in. dia o/a. | 593 0312 003 | |
| L903 | COIL, subassembly: same as L902. | 593 0312 003 | |
| L904 | COIL, subassembly: same as L902. | 593 0312 003 | |
| L905 | COIL, subassembly: same as L902. | 593 0312 003 | |
| L906 | COIL, subassembly: same as L902. | 593 0312 003 | |
| L907 | COIL, subassembly: same as L902. | 593 0312 003 | |
| L908 | COIL, subassembly: same as L902. | 593 0312 003 | |
| L909 | COIL, subassembly: same as L901. | 593 0311 003 | |
| P901 | CABLE ASSEMBLY, RF: coaxial cable assembly w/ one end terminated in a connector and the other end (cont) | 426 1214 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| P901 | (cont) unprocessed; Microdot Div., Felts Corp. | | |
| P902 | CABLE ASSEMBLY, rf coaxial: same as P303. | 426 1263 00 | |
| W901 | LINE, transmission, rf: c/o cable assembly rf w/ cable termination (Industrial Products Co. #21275). | 593 0815 002 | |
| W902 | LINE, transmission, rf: 11-1/8 in. lg approx; c/o cable assem rf w/ cable termination (Industrial Products Co. #21275). | 593 0814 002 | |
| A1001 | MOUNTING, bracket: c/o insert soldered to brass bracket; 0.859 in. h by 1.687 in. w by 4-5/8 in. lg approx o/a dim. | 593 1240 002 | |
| A1002 | COVER, blower housing front; aluminum, black wrinkle finish; 3/16 in. thk by 2-3/4 in. w by 2-13/16 in. lg approx; four holes 0.140 in. dia csk 82° by 0.230 in. dia irregularly spaced. | 593 1245 003 | |
| A1003 | SCROLL, blower: aluminum, black wrinkle finish; scroll shape; 1.046 in. h by 2.875 in. w by 3.093 in. lg approx; two 0.171 in. dia csk 82° by 0.280 in. dia holes spaced 1.375 in. c to c; four 4-40 NC-2B by 1/4 tapped holes irregularly spaced. | 593 1249 004 | |
| A1004 | COVER, scroll, rear: 3003-H12 aluminum, black anodized finish; 3-1/4 in. by 3-3/8 in. by 3/16 in. o/a dim; four 0.140 in. dia holes for mtg. | 593 1244 003 | |
| A1005 | SCROLL, blower; rear; aluminum, black wrinkle finish; irregular shape; 2 in. by 3.343 in. by 3.437 in. approx; eight no. 4-40 NC-2B x 1/4 in. deep tapped holes irregularly spaced. | 593 1250 004 | |
| A1006 | PLATE, housing: blower; 356-T6 aluminum, black wrinkle finish; 3-5/16 in., 3-1/8 in., 7/16 in. approx o/a; 0.128 in. dia holes csk to 0.230 in. dia four places for mtg. | 593 1246 003 | |
| A1007 | PLATE, mounting: dynamotor no. 2; SS type 304, passivate finish; 4-3/8 in. lg, 3-1/8 in. w o/a dim; four 0.187 in. dia holes, two ea side for mtg. | 593 0277 003 | |
| A1008 | BLOCK, mounting: dynamotor; 2024-T4 aluminum, chromate dip; 0.453 in. by 9/16 in. by 4-3/8 in. o/a; five 8-32 NC-2B holes for mtg. | 594 9415 003 | |
| A1009 | BRACKET: 11 pin connector support; 0.022 in. thk by 9/32 in. w by 1-1/16 in. lg; two 0.128 in. dia mtg holes. | 594 9395 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| A1010 | CLAMP, loop: SS wire, passivate finish; 0.0625 in. dia; 0.4475 in. w by 0.9475 in. o/a; 1/32 in. w opening. | 594 9394 002 | |
| A1011 | SHIELD, connector: 3003 -0 aluminum, chromate dip; irregular shape; 0.437 in. d by 1-3/32 in. w by 1-1/4 in. lg; two 0.128 in. dia mtg holes. | 593 1247 003 | |
| A1051 | COVER, scroll, rear: same as A1004. | 593 1244 003 | |
| A1052 | SCROLL, blower: same as A1005. | 593 1250 004 | |
| A1053 | PLATE, housing: blower; same as A1006. | 593 1246 003 | |
| A1054 | PLATE, mounting: c/o retaining spring riveted to mtg plate and hardware; 0.405 in. thk by 3.062 in. w by 5.843 in. lg approx o/a dim. | 593 0854 003 | |
| A1055 | PAD, gear box: aluminum, black anodize; 0.040 in. thk by 1-7/8 in. w by 2-1/4 in. lg o/a; two 0.203 in. dia holes spaced 1.687 in. c to c, two 0.156 in. dia holes spaced 1.343 in. c to c. | 593 0828 002 | |
| A1057 | COVER, fan: aluminum, black anodize finish; fan shaped; 11/16 in. d by 1.859 in. h by 3.062 in. lg; two 0.180 in. dia holes spaced 1.250 in. c to c; nine 5/32 in. by 11/16 in. cutouts required. | 593 0830 002 | |
| A1058 | COVER: connector; aluminum, chromate dip; 0.437 in. h by 1-3/32 in. w by 1-1/4 in. lg; two 0.128 in. dia holes spaced 0.781 in. c to c. | 593 0857 003 | |
| A1059 | HOUSING: gear; aluminum, black wrinkle finish; 1.187 in. h by 1.875 in. w by 2-3/8 in. lg. | 593 0855 003 | |
| A1060 | HOUSING: output; c/o 2 pins pressed into housing; irregular shape; 1-1/4 in. d by 2 in. h by 2-3/8 in. lg. | 593 0851 002 | |
| A1061 | PLATE, retainer: aluminum, black anodize finish; 0.156 in. thk by 0.875 in. w by 1.640 in. lg; four 0.125 in. dia holes spaced on 0.656 in. by 0.500 in. mtg ctr. | 593 0845 002 | |
| A1062 | PLATE, retainer: aluminum, black anodize; 0.125 in. thk by 0.843 in. w by 0.875 in. lg. | 593 0846 002 | |
| A1063 | PLATE, anchor: aluminum, black anodize finish; 0.093 in. thk by 0.316 in ID by 0.875 in. OD; two 0.125 in. dia holes spaced 0.687 in. c to c. | 593 0847 002 | |
| B1051 | MOTOR, AC: single phase induction motor; 115 vac input voltage; input current 0.50 amps; continuous duty cycle; Rotron Mfg Co. type 91AS-RA3 duplex. | 044 0001 230 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| B1052 | IMPELLER, fan, centrifugal: blade type; forward curve; single width; 4 blades; ccw; 29/64 in. w by 3 in. dia; Torrington p/n 0-327-4. | 009 1139 00 | 6Z7670-2 |
| C1006 | SUPPRESSOR, electrical noise: same as FL1. | 044 0164 98 | |
| C1051 | CAPACITOR, fixed: paper; 1.0 mf +20% -10%; 220 vdcw; Sprague #67055. | 044 0003 931 | |
| D1001 | DYNAMOTOR: 26.4 vdc standard input 30.0 vdc max, 20.0 vdc min; load A, output no. 1, 170 vdc nom at 140 ma, output no. 2, 300 vdc ±5% at 380 ma; load B- output no. 1, 170 vdc ±5% at 140 ma; output no. 2, 300 vdc nom at 85 ma. | 044 0225 01 | |
| E1001 | TERMINAL, lug: brass or copper; 0.025 in. by 7/16 in. by 1-1/8 in.; Cinch Cat. no. 4422. | 304 0268 00 | |
| E1002 | TERMINAL, lug: same as E1001. | 304 0268 00 | |
| FL1001 | FILTER, DC power: capacitor and iron core coil type; 0.250 in. w by 0.281 in. h by 1.812 in. lg. | 593 1242 002 | |
| FL1002 | FILTER, DC power: same as FL1001. | 593 1242 002 | |
| FL1003 | FILTER, DC power: same as FL1001. | 593 1242 002 | |
| H1001 | WASHER, lock: stainless steel type 302; split helical spring type; 0.025 in. thk by 0.115 in. ID by 0.212 in OD; Harper Mfg Co. | 310 0279 00 | |
| H1002 | SCREW, machine: SS type 430; Phillips recessed pan head; no. 4-40 NC-2A thd by 3/16 in. lg; Pheoll. | 343 0132 00 | 6L6440-3.8SPH |
| H1003 | CLAMP, cable: SS type 304, passivate finish; 3/16 in. h by 3/8 in. w by 5/8 in. lg. | 593 1243 002 | |
| H1004 | SCREW, machine: brass; slotted; binding head, 0.235 in. head dia by 0.063 in. h; 4-40 NC-2 thd, 3/16 in. lg; Pheoll. | 323 0018 00 | 6LK6440-3.1B |
| H1005 | GROMMET, rubber: neoprene, 3/16 in. h, 3/16 in. ID, 7/16 in. OD; Atlan India Rub. | 201 0001 00 | 6Z4895 |
| H1006 | WASHER, lock: stainless steel type 410, plain finish; rd; 0.022 in. thk, 0.322 in. ID, 0.435 in. OD; Shakeproof #1718-02. | 373 0084 00 | |
| H1007 | NUT, special: brass, nickel plated; no. 5/16-24 NF-2B thd; 0.385 in. dia by 5/32 in. h. | 593 0173 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| H1008 | SCREW, machine: SS type 430; Phillips flat head; no. 6-32 NC-2A thd by 1/4 in. lg; Pheoll. | 342 0060 00 | |
| H1010 | SCREW, machine: Phillips flat recessed head; no. 4-40 NC-2A thd by 1/4 in. lg; SS type 430; Pheoll. | 342 0044 00 | |
| H1011 | WASHER, lock: stainless steel type 302; split helical ring type #9; 0.040 in. thd by 0.168 in. ID by 0.296 in. OD; Wrought Washer. | 310 0072 00 | 6L71002-22 |
| H1012 | SCREW, machine: hexagon head; no. 8-32 NC-2 thd by 3/8 in. lg; SS type 430, plain finish, green gloss enamel finish on head. | 593 0262 002 | |
| H1013 | SCREW, machine: SS type 430; Phillips recessed pan-head; no. 4-40 NC-2A thd by 1/4 in. lg; Pheoll. | 343 0133 00 | |
| H1014 | POST, spacing: brass, bright alloy plate, 3/16 in. across hex by 0.500 in. lg; one no. 4-40 NC-2B tapped center hole. | 594 9695 002 | |
| H1015 | WASHER, lock: SS type 302; split helical ring; 0.020 in. thk, 0.115 in. ID, 0.202 in. OD; Harper Mfg Co. | 310 0278 00 | |
| H1051 | CLAMP, cable: cadmium plated steel; accommodates 3/16 in. dia material; Cinch Cat. no. 1066. | 139 0647 00 | |
| H1052 | WASHER, lock: same as H1011. | 310 0072 00 | 6L71002-22 |
| H1053 | WASHER, lock: same as H1001. | 310 0279 00 | |
| H1054 | WASHER, lock: SS type 302; split helical ring type; 0.031 in. thk by 0.141 in. ID by 0.253 in. OD; Harper Mfg Co. | 310 0282 00 | |
| H1055 | WASHER, flat: rd, stainless steel; 0.031 in. thk by 0.147 in. ID by 0.375 in. OD; Wrought Washer. | 310 6360 00 | 6L58022-130 |
| H1056 | NUT, lock: elastic stop nut type; steel, plain finish; no. 3-56 NF-2 thd; 1/4 in. across flats, 9/64 in. h; Esna p/n 79M-40. | 333 0037 00 | |
| H1057 | SCREW, machine: same as H1010. | 342 0044 00 | |
| H1058 | SCREW, machine: SS type 430; Phillips recessed flat head; no. 4-40 NC-2A thd by 7/16 in. lg; Pheoll. | 342 0047 00 | |
| H1059 | SCREW, machine: SS type 430; Phillips recessed flat head; no. 6-32 NC-2A thd by 1/2 in. lg; Pheoll. | 342 0064 00 | |
| H1060 | SCREW, machine: same as H1013. | 343 0133 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| H1061 | SCREW, machine: SS type 430; Phillips recessed panhead; no. 6-32 NC-2A thd by 5/16 in. lg; Pheoll. | 343 0168 00 | 6L6632-5.9PHS |
| H1062 | SCREW, machine: SS type 430; Phillips recessed panhead; no. 8-32 NC-2A thd, 1/4 in. lg; Pheoll. | 343 0185 00 | |
| H1063 | SCREW, machine: SS type 430; Phillips recessed panhead; no. 8-32 NC-2A thd by 1/2 in. lg; Pheoll. | 343 0189 00 | |
| H1064 | SCREW, machine: SS type 430; Phillips recessed fillister head; no. 6-32 NC-2A thd by 1/2 in. lg; Pheoll. | 347 0037 00 | |
| H1066 | POST, spacing: aluminum, black anodize finish; 0.312 in. dia by 1/2 in. lg shoulder one end; 2.031 in. lg o/a; no. 6-32 NC-2B tapped hole both ends. | 593 0838 002 | |
| H1067 | POST, spacing: SS type 303; 0.312 in. dia by 2 in. lg; one no. 6-32 NC-2B tapped hole one end; no. 6-32 NC-2A by 3/16 in. lg other end. | 593 0837 002 | |
| H1068 | CLAMP, loop: same as A1010. | 594 9394 002 | |
| H1069 | POST, spacing: same as H1014. | 594 9695 002 | |
| H1070 | SCREW, machine: same as H1012 | 593 0262 002 | |
| H1071 | WASHER, lock: same as H1001. | 310 0279 00 | |
| H1072 | WASHER, lock: same as H1054. | 310 0282 00 | |
| H1073 | RING, retainer: berrylium copper, plain finish; for use on 0.250" dia shaft; Waldes Koh-I-Noor #5100-25. | 340 0038 00 | 2Z7858-39 |
| H1074 | RING, retaining: steel, cadmium plated; "C" shape; 0.025 in. thk by 0.270 in. ID; Waldes p/n 5103-31. | 340 0115 00 | |
| H1075 | SCREW, machine: same as H1013. | 343 0133 00 | |
| H1076 | SCREW, machine: stainless steel type 430; Phillips recessed panhead; no. 4-40 NC-2A thd by 5/16 in. lg; Pheoll. | 343 0134 00 | 6L6440-5.8SPH3 |
| H1077 | SCREW, machine: SS type 430; Phillips recessed panhead; no. 4-40 NC-2A thd by 3/8 in. lg; Pheoll. | 343 0135 00 | 6L6440-6.8SPH2 |
| H1078 | SCREW, machine: SS type 430; Phillips recess drive; no. 6-32 NC-2A thd by 3/8 in. lg; Pheoll. | 343 0169 00 | 6L6632-6.8SPH1 |
| H1079 | SCREW, machine: SS type 430; Phillips recessed fillister head; no. 4-40 NC-2A thd by 1/4 in. lg; Pheoll. | 347 0006 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| H1080 | WASHER, lock: stainless steel, split helical ring; 0.0312 in. thk by 0.125 in. ID by 0.187 in. OD; Wrought Washer. | 310 3340 00 | 6L71002-20 |
| H1081 | WASHER, flat: SS type 416; 0.312 in. ID by 0.374 in. OD by 0.062 in. thk. | 593 0839 002 | |
| H1082 | WASHER, flat: rd; SS type 304; passivate finish; 0.012 in. thk by 0.255 in. ID by 0.437 in OD. | 593 0841 002 | |
| H1083 | POST, spacing: SS type 416, passivate finish; 0.437 in. ID by 0.499 in. OD by 0.375 in. lg. | 593 0840 002 | |
| H1084 | WASHER, flat: SS type 304, passivate finish; 0.313 in. ID by 0.500 in. OD by 0.0156 in. thk. | 593 0835 002 | |
| O1001 | IMPELLER, fan, centrifugal: 16 paddle type blades, CCW rotation, viewing closed end of wheel; steel cadmium plated; Torrington. | 044 0349 97 | |
| O1002 | IMPELLER, fan, centrifugal: two section, double inlet paddle type blades, cw rotation viewing hub extension; steel cadmium plated; Torrington. | 044 0350 97 | |
| O1003 | SPRING: flat type; 0.0187 in. thk stainless steel; passivate finish; 3-1/4 in. lg; 0.312 in. w; two 8-32 NC-2B holes, one ea end and one 0.125 in. dia hole in c. | 593 0261 003 | |
| O1004 | SPRING: flat type: SS type 302 passivate finish; 0.0187 in. thk; 4-1/4 in. lg by 7/16 in. w; two 8-32 NC-2B holes, one ea end and one 0.125 in. dia c hole. | 593 0260 002 | |
| O1005 | RETAINER, spring: beryllium copper, bright alloy plate; 5/32 in. h by 0.475 in. w by 0.781 in. lg approx o/a; 0.128 in. dia hole one end. | 593 1255 002 | |
| O1051 | IMPELLER, fan, centrifugal: same as O1002. | 044 0350 97 | |
| O1052 | COUPLING, flexible: neoprene w/ stainless steel type no. 430 hub; 9/16 in. dia by 13/16 in. lg; Lord type no. SK-1947. | 015 0162 00 | |
| O1053 | BRACKET: same as 1009. | 594 9395 002 | |
| O1054 | RETAINER, spring: same as O1005. | 593 1255 002 | |
| O1055 | BEARING, ball: single row radial; 0.2500 in. dia bore, 0.3750 in. OD, 0.1250 in. w. | 309 9020 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| O1056 | BEARING, ball: single row radial; 0.3125 in.dia bore, 0.5000 in. OD, 0.1562 in. w. | 309 9021 00 | |
| O1057 | GEAR: spur; 35 teeth; 0.8419 in. pitch dia; 20° pressure angle. | 593 0833 002 | |
| O1058 | SHIELD: slinger, input; SS passivate finish; 0.178 in. d by 0.252 in. ID by 0.542 in. OD. | 593 0843 002 | |
| O1059 | GEAR, spur: 35 teeth; 0.7759 pitch dia; 20° pressure angle. | 593 0852 003 | |
| O1060 | SHIELD, idler; stainless steel type 303, passivate finish; 0.178 in. by 0.252 in. ID by 0.542 OD. | 593 0842 002 | |
| O1061 | GEAR ASSEMBLY: c/o output shaft w/ pin pressed into gear blank; 0.562 in. dia by 2.062 in. lg approx, o/a dim. | 593 0850 002 | |
| O1062 | SHIELD, slinger, output: stainless steel type 303, passivate finish; 0.218 in. thk by 0.312 in. ID by 0.605 in. OD. | 593 0844 002 | |
| O1063 | PIN, locking: brass, chemical polish finish; 0.031 in. h by 3/8 in. dia head; 9/32 in. lg o/a; 0.040 in. w by 0.115 in. dia groove. | 593 1199 002 | |
| O1064 | PIN, locking: same as O1063 | 593 1199 002 | |
| P1001 | CONNECTOR, plug: same as P201. | 372 1530 00 | |
| P1051 | CONNECTOR, plug: same as P201. | 372 1530 00 | |
| W1001 | CABLE ASSEMBLY, special purpose: dynamotor; c/o 11 pin connector, bracket, retaining spring, shield, nylon cord and assorted hdwe; 8.937 in. lg approx. | 593 1248 003 | |
| A1201 | PLATE, mounting: switch; aluminum, chromate dip; 2 in. lg by 2-1/8 in. w by 0.040 in. thk. | 594 9667 003 | |
| A1203 | PLATE, gear: aluminum, chromate dip; plate w/ SS shaft, bronze bearings; 4.375 in. lg by 1-1/8 in. w by 4.125 in. h approx o/a. | 594 9683 004 | |
| A1204 | PLATE, gear: aluminum, chromate dip plate w/ SS shaft bushing, stud and bronze bearings; 4.375 in. lg by 4.125 in. w by 0.375 in. thk approx o/a. | 594 9672 003 | |
| A1205 | PLATE, gear: front; aluminum, chromate dip gear plate w/ SS idler shaft and bronze bearings; 8-3/4 in. lg by 1-1/4 in. w by 5-1/2 in. h approx o/a. | 594 9685 004 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| A1207 | MOUNTING, bracket: relay; SS #302; 0.984 in. lg by 1-1/32 in. w by 0.050 in. thk. | 594 9585 002 | |
| A1208 | MOUNTING, bracket: same as A1207. | 594 9585 002 | |
| A1209 | MOUNTING, bracket: same as A1207. | 594 9585 002 | |
| A1211 | PLATE, mounting: relay; 2024-T3 aluminum chromate dip; 1.0547 in. lg by 0.8125 in. w by 0.125 in. thk o/a. | 594 9586 002 | |
| A1212 | MOUNTING, bracket: c/o bearing secured in bracket; irregular shape; 0.312 in. h by 0.953 in. w by 1.781 in. lg o/a. | 593 1006 002 | |
| A1213 | MOUNTING, bracket: relay; SS type 304, passivate finish; 0.375 in. d by 0.953 in. w by 1-1/32 in. lg. | 593 0996 002 | |
| A1214 | SCALE PLATE: 5052-H32 aluminum, gold anodized finish; 0.040 in. thk; 5.234 in. lg, 1-5/16 in. w; irregular shape; two 0.312 in. dia holes, 1 ea side; silk screened black. | 593 1019 004 | |
| A1215 | PLATE, spacer: SS type 304, passivate, finish; 0.025 in. thk by 0.437 in. w by 2.750 in. lg; two 0.187 in. dia holes spaced 2.312 in. c to c. | 593 0994 002 | |
| A1216 | PLATE, lock: connector; SS type 304, passivate finish; 0.050 in. thk by 29/32 in. w by 3.093 in. lg; two 0.250 in. dia holes spaced 2.312 in. c to c. | 593 0995 002 | |
| A1217 | SHIELD, connector: c/o eyelet secured to aluminum shield; 0.562 in. d by 1-3/32 in. h by 1.703 in. lg approx o/a. | 593 1009 002 | |
| A1218 | MOUNTING, bracket: steel, cadmium plated; 0.023 in. thk by 9/32 in. w by 1-9/32 in. lg; two 0.128 in. dia holes ea end. | 593 0744 002 | |
| A1219 | CLAMP, loop: same as A1010. | 594 9394 002 | |
| B1201 | MOTOR, DC: shunt type; 0.044 hp, 7400 rpm; 26.4 vdc; duty cycle, up to 105°C -6 sec on, 9 sec off, repeat; 105°C to 125°C -6 sec on, 24 sec off, repeat; GE. | 044 0217 01 | |
| E1201 | TERMINAL, lug: same as E608. | 304 3120 00 | 3Z12059-58 |
| E1202 | TERMINAL, lug: same as E608. | 304 3120 00 | 3Z12059-58 |
| H1201 | NUT, square: same as H217. | 334 0485 00 | 6L3704-40-3.2 |
| H1202 | WASHER, flat: SS type 302; round; 0.251 in. ID, 7/16 in. OD; 0.156 in. thk. | 594 9485 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| H1203 | NUT, lock: spring steel, no. 1/4-28 thd; 7/16 in. w across flats, 0.110 in. thk; Palnut p/n 14L28. | 334 0892 00 | |
| H1204 | WASHER, thrust: SS type 302; round; 0.191 in. ID, 3/8 in. OD; 0.0156 in. thk. | 594 9489 002 | |
| H1205 | WASHER, flat: SS type 302; round; 0.500 in. OD by 0.191 in. ID by 0.0156 in. thk. | 594 9549 002 | |
| H1206 | POST, spacing: aluminum, chromate dip; hex head, 1/4 in. across flats; 0.718 in. lg by 0.187 in. dia. | 594 9558 002 | |
| H1207 | POST, spacing: aluminum, chromate dip; 1.156 in. lg by 0.375 in. dia o/a. | 594 9560 002 | |
| H1208 | POST, spacing: aluminum, chromate dip; cylindrical; shouldered; 1.248 in. lg by 0.375 in. dia o/a. | 594 9561 002 | |
| H1209 | POST, spacing: aluminum; chromate dip; cylindrical; 0.562 in. lg by 0.312 in. dia o/a. | 594 9562 002 | |
| H1210 | POST, spacing: aluminum, chromate dip; cylindrical, shouldered; 0.637 in. lg by 0.312 in. dia. | 594 9563 002 | |
| H1211 | POST, spacing: aluminum, chromate dip; cylindrical, shouldered; 0.637 in. lg by 0.375 in. dia. | 594 9564 002 | |
| H1212 | POST, spacing: aluminum, chromate dip; cylindrical; shouldered; 0.576 in. lg by 0.375 in. dia. | 594 9565 002 | |
| H1213 | CLAMP,cable: cold rolled steel, cadmium pl; 1 bolt employed; 0.0478 in. thk, 1 in. lg by 3/8 in. w by 0.3603 in. h o/a. | 594 9644 002 | |
| H1214 | SCREW, machine: bristo drive; cheese head; steel, cadmium pl; Wrought Washer. | 324 0300 00 | 6L6440-8.90 |
| H1216 | POST, spacing: aluminum, chromate dip; cylindrical; 0.281 in. lg by 0.187 in. OD by 0.113 in. ID. | 594 9590 002 | |
| H1217 | POST, spacing: aluminum, chromate dip; cylindrical; 0.156 in. lg, 0.187 in. OD, 0.113 in. ID. | 594 9589 002 | |
| H1218 | POST, spacing: for switch; anodized aluminum; cylindrical; 1/4 in. dia by 0.125 in. lg o/a. | 502 1664 001 | 2Z7259-174 |
| H1219 | WASHER, flat: SS type 302; round, 0.158 in. ID, 0.375 in. OD by 0.0156 in. thk. | 594 9486 002 | |
| H1220 | RING, retainer: external; beryllium copper, plain finish; used on 0.1875 in. dia shaft; Waldes Koh-I-Noor #Nas-51-18. | 340 0004 00 | 2Z7857-38 |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| H1221 | RING, retainer: external; beryllium copper, plain finish; used on 0.156" dia shaft; Waldes Koh-I-Noor #NAS-51-15. | 340 0023 00 | 2Z7858-263 |
| H1222 | RING, retainer: same as H1073. | 340 0038 00 | 2Z7858-39 |
| H1223 | RING, retainer: type E; beryllium copper; used on 0.125 in. dia shaft; Waldes Truarc #5133-12. | 340 0250 00 | |
| H1224 | RING, retainer: E type; beryllium copper, plain finish; used on 0.187 in. dia shaft; Waldes Truarc #5133-18. | 340 0253 00 | 2Z7858-452 |
| H1225 | RING, retainer: type E; beryllium copper, plain finish; used on 0.250 in. dia shaft; Waldes Truarc #5133-25. | 340 0254 00 | |
| H1226 | RING, retainer: E type; beryllium copper; plain finish; used on 0.062 in. dia shaft; Waldes Truarc #5133-6. | 340 0256 00 | |
| H1227 | NUT, hex: SS, plain; 5/16-24 UNF-2B thd; Delco. | 334 0249 00 | 6L3505-24-8S |
| H1228 | CLAMP, cable: same as H1051. | 139 0647 00 | |
| H1230 | WASHER, flat: phenolic 0.031 in. thk 0.116 in. ID, 0.187 OD; Oak Cat. no. 8942. | 302 0262 00 | 3G385-73 |
| H1231 | WASHER, lock: same as H1011. | 310 0072 00 | 6L71002-22 |
| H1232 | WASHER, lock: same as H1001. | 310 0279 00 | |
| H1233 | WASHER, lock: same as H1054. | 310 0282 00 | |
| H1234 | STUD, continuous thread: stainless steel type 303; no. 8-32 thd by 1/2 in. lg; Pheoll Mfg Co. | 312 3113 00 | |
| H1235 | SETSCREW: stainless steel; headless; no. 4-48 NC-2 thd by 1/8 in. lg; Bristolco. | 335 0019 00 | 6L18504-2.31S1 |
| H1236 | NUT, lock: elastic stop nut type; brass, nickel plated; no. 4-40 NC-2 thd; 0.141 in. h, 0.250 in. across flats; Esna type M, p/n #96NM-40. | 333 0349 00 | |
| H1237 | NUT, lock: aluminum, 5/16 in. across hex by 11/64 in. h, Esna p/n 68 M62. | 333 8620 00 | |
| H1238 | SCREW, machine: same as H1010. | 342 0044 00 | |
| H1239 | SCREW, machine: stainless steel type 430; Phillips flat recessed head; no. 8-32 NC-2A thd by 3/8 in. lg; Pheoll. | 342 0078 00 | |
| H1240 | SCREW, machine: same as H1079. | 347 0006 00 | |
| H1241 | SCREW, machine: SS type 430; Phillips recessed fillister head; no. 4-40 NC-2A thd by 5/16 in. lg; Pheoll. | 347 0007 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| H1242 | SCREW, machine: SS type 430; Phillips recessed fillister head; no. 4-40 NC-2 thd by 3/8 in. lg; Pheoll. | 347 0008 00 | 6L6440-6.3SPH |
| H1243 | SCREW, machine: SS type 430; Phillips recessed fillister head; no. 4-40 NC-2A thd by 7/16 in. lg; Pheoll. | 347 0009 00 | |
| H1244 | SCREW, machine: SS type 430; Phillips recessed fillister head; no. 4-40 NC-2A thd by 5/8 in. lg; Pheoll. | 347 0011 00 | |
| H1245 | SCREW, machine: SS type 430; Phillips fillister head; no. 6-32 NC-2A thd by 1/4 in. lg; Pheoll. | 347 0033 00 | |
| H1246 | SCREW, machine: SS type 430; Phillips recessed fillister head; no. 6-32 NC-2A thd by 5/16 in. lg; Pheoll. | 347 0034 00 | 6L6632-5.3SPH |
| H1247 | SCREW, machine: SS type 430; Phillips fillister recessed head; no. 6-32 NC-2A thd by 3/8 in. lg; Pheoll. | 347 0035 00 | |
| H1248 | SCREW, machine: same as H1064. | 347 0037 00 | |
| H1249 | SCREW, machine: SS type 430; Phillips fillister head; no. 6-32 NC-2A thd by 1-1/8 in. lg; Pheoll. | 347 0042 00 | |
| H1250 | SCREW, machine: SS type 430; Phillips recessed fillister head; no. 8-32 NC-2A thd by 3/8 in. lg; Pheoll. | 347 0051 00 | |
| H1251 | SCREW, machine: SS type 430; Phillips fillister recessed head; no. 8-32 NC-2A thd by 1/2 in. lg; Pheoll. | 347 0053 00 | 6L6832-8.3SPH |
| H1252 | SCREW, machine: SS type 430; Phillips recessed fillister head; no. 8-32 NC-2A thd by 5/8 in. lg; Pheoll. | 347 0054 00 | |
| H1253 | SCREW, machine: same as H1002. | 343 0132 00 | 6L6440-3.8SPH |
| H1254 | SPACER: 2024-T4 aluminum, chromate dipped; 0.120 in. ID, 0.281 in. OD, 0.125 in. lg. | 594 9587 002 | |
| H1255 | SCREW, machine: SS type 430; Phillips flat recessed head no. 4-40 NC-2A thd 3/16 in. lg; Pheoll. | 342 0043 00 | |
| H1256 | POST, connector mtg: SS type 303, passivate finish; 0.310 in. dia by 0.609 in. lg; no. 4-40 NC-2B by 1/4 in. thd one end. | 593 0992 002 | |
| H1257 | WASHER, flat: same as H1082. | 593 0841 002 | |
| H1258 | WASHER, flat: stainless steel type 302; rd; 0.027 in. thk by 1/8 in. ID by 5/16 in. OD; Wrought Washer. | 310 0045 00 | 6L58004-19 |
| H1259 | CLAMP, cable: SS type 304; accom 0.046 in. dia material; one 0.171 in. dia hole for fastening; 0.031 in. thk by 11/32 in. w by 0.593 in. lg. | 593 1064 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| H1260 | SCREW, machine: same as H1013. | 343 0133 00 | |
| H1261 | WASHER, flat: rd; bakelite; 1/32 in. thk by 0.130 in. ID by 1/4 in. OD; Oak p/n 3482-12. | 302 0335 00 | |
| H1262 | NUT, hexagon: brass, nickel plated; no. 5-40 NC-2B thd; Oak. | 334 0251 00 | |
| H1263 | WASHER, lock: stainless steel, split helical ring; 0.036 in. thk by 0.138 in. ID by 0.241 in. OD; Wrought Washer. | 310 0012 00 | 6L70006-12 |
| H1264 | POST, spacing: same as H1014. | 594 9695 002 | |
| H1265 | BUSHING: channel selector switch spacer; aluminum, chromate dip; 0.136 in. ID by 0.250 in. OD by 0.218 in. lg. | 593 1003 002 | |
| H1266 | STUD: threaded; aluminum; 29/32 in. lg by 1/4 in. across flats o/a; one end threaded no. 5-40 NC-2A by 9/32 in. lg; other end tapped no. 4-40 NC-2B by 3/16 in. d. | 593 1004 002 | |
| H1267 | PIN, locking: stainless steel type 420; 0.028 in. ID, 0.062 in. OD, 5/16 in. lg; groove full lg of pin; Esna. | 311 0418 00 | 6L3939-5-1 |
| H1268 | PIN, locking: SS type 420, passivated; 0.062 in. dia by 3/8 in. lg; Esna. | 311 0419 00 | |
| H1269 | WASHER, lock: same as H1015. | 310 0278 00 | |
| I1201 | DIAL: 10 mc; c/o bronze hub; brass; 80 tooth, 64 pitch dia gear; aluminum drum dial; w/ black markings 30 day apart; mtg bracket and two retaining rings. | 594 9638 002 | |
| I1202 | DIAL: c/o 1 crown gear, 1 mtg bracket assy, 1 drum dial, 1 crown hub; 0.453 in. thk by 1.359 in. lg by 1.812 in.w approx o/a. | 593 0997 002 | |
| I1203 | DIAL: 0.1 mc; c/o mtg bracket, crown gear, drum dial and hdwe; 0.428 in. thk by 1.343 in. h by 1.812 in. w approx o/a. | 593 0998 002 | |
| I1204 | DIAL: c/o gear hub, 80 tooth crown gear, dial mtg bracket, 2 retaining rings and dial; 0.453 in. d by 1.343 in. h by 1.812 in. w approx o/a. | 593 0988 002 | |
| J1201 | CONNECTOR, receptacle: same as J8. | 372 1532 00 | |
| K1201 | RELAY, armature: cont arrangement 1A; 5 amp at 32 vdc; fine silver; 1/8" dia; single wnd coil, 26.4 vdc, 20 ohm ±10%; Auto Electric. | 044 0611 99 | |
| K1202 | RELAY, armature: same as K1201. | 044 0611 99 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| K1203 | RELAY, armature: same as K1201. | 044 0611 99 | |
| K1204 | RELAY, armature: cont arrangement 1C; 5 amp at 32 vdc; fine silver, 1/8 in. dia; single wnd coil, 26.4 vdc, 20 ohm ±10%; Auto Elec. | 044 0612 99 | |
| N1201 | DIAL: drum; 0.1 mc A/P; aluminum; white w/ black characters a and b, 0 thru 9; 0.258 in. lg by 1.187 in. dia o/a. | 594 9666 003 | |
| N1202 | DIAL: drum; 1.0 mc A/P; aluminum; white w/ black characters a and b, 0 thru 9; 0.258 in. lg x 1.187 in. dia o/a. | 594 9665 003 | |
| N1203 | DIAL: drum; 10 mc A/P; aluminum; white w/ black characters a and b, 0 thru 9; 0.258 in. lg by 1.187 in. dia o/a. | 594 9664 003 | |
| N1204 | DIAL: drum; channel A/P aluminum; white w/ black characters 1 thru 19 plus M; 0.258 in. lg by 1.093 in. dia o/a. | 593 1017 004 | |
| O1201 | DRUM, clutch: SS type 302; 0.417 in. thk by 1.249 in. dia approx o/a; 0.566 in. dia hole for mtg. | 593 1790 002 | |
| O1202 | DRUM, clutch: same as O1201. | 593 1790 002 | |
| O1203 | DRUM, clutch: same as O1201. | 593 1790 002 | |
| O1204 | DRUM, clutch: same as O1201. | 593 1790 002 | |
| O1205 | WASHER, flat: linen base bakelite; round; 0.859 in. ID; 1.187 in. OD by 0.070 in. thk. | 502 1164 002 | 6L40214 |
| O1206 | WASHER, flat: same as O1205. | 502 1164 002 | 6L40214 |
| O1207 | WASHER, flat: same as O1205. | 502 1164 002 | 6L40214 |
| O1208 | WASHER, flat: same as O1205. | 502 1164 002 | 6L40214 |
| O1209 | CLUTCH, friction: c/o clutch lining, clutch shoe and solder strip; 1.252 in. OD by 0.320 in. thk. | 502 1825 002 | 2Z2866-24 |
| O1210 | CLUTCH, friction: same as O1209. | 502 1825 002 | 2Z2866-24 |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| O1211 | CLUTCH, friction: same as O1209. | 502 1825 002 | 2Z2866-24 |
| O1212 | CLUTCH, friction: same as O1209. | 502 1825 002 | 2Z2866-24 |
| O1213 | SPRING: flat; for clutch; cadmium pl wire; 1.156 in. OD. | 502 7029 002 | 2Z8877.592 |
| O1214 | SPRING: flat; same as O1213. | 502 7029 002 | 2Z8877.592 |
| O1215 | SPRING: flat; same as O1213. | 502 7029 002 | 2Z8877.592 |
| O1216 | SPRING: flat; same as O1213. | 502 7029 002 | 2Z8877.592 |
| O1217 | SPRING: flat; same as O1213. | 502 7029 002 | 2Z8877.592 |
| O1218 | SPRING: flat; same as O1213. | 502 7029 002 | 2Z8877.592 |
| O1219 | SPRING: flat; same as O1213. | 502 7029 002 | 2Z8877.592 |
| O1220 | SPRING: flat; same as O1213. | 502 7029 002 | 2Z8877.592 |
| O1221 | SPRING: flat; same as O1213. | 502 7029 002 | 2Z8877.592 |
| O1222 | SPRING: flat; same as O1213. | 502 7029 002 | 2Z8877.592 |
| O1223 | SPRING: flat; same as O1213. | 502 7029 002 | 2Z8877.592 |
| O1224 | SPRING: flat; same as O1213. | 502 7029 002 | 2Z8877.592 |
| O1225 | FLANGE, bearing: SS type 303; 0.3135 in. dia hole in ctr; 0.843 in. OD by 0.093 in. thk; fits 0.565 in. dia hole. | 593 1791 002 | |
| O1226 | FLANGE, bearing: same as O1225. | 593 1791 002 | |
| O1227 | FLANGE, bearing: same as O1225. | 593 1791 002 | |
| O1228 | FLANGE, bearing: same as O1225. | 593 1791 002 | |
| O1229 | PAWL: Autopositioner; beryllium copper; 1-1/4 in. lg by 1/4 in. w by 1/4 in. h approx o/a; 0.125 in. dia mtg hole. | 503 5079 002 | 2Z6974-4 |
| O1230 | PAWL: same as O1229. | 503 5079 002 | 2Z6974-4 |
| O1231 | PAWL: same as O1229. | 503 5079 002 | 2Z6974-4 |
| O1232 | PAWL: same as O1229. | 503 5079 002 | 2Z6974-4 |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| O1233 | GEAR ASSEMBLY: c/o 1 drive gear and 1 bearing; bronze gear, 72 teeth, 20° pressure angle, 1.500 pitch dia; plain bronze oilite bearing, 0.215 in. ID, 0.502 in. OD, 0.300 in. lg; 1.5412 in. OD by 0.330 in. lg o/a. | 504 7200 002 | 2Z4878A-12 |
| O1234 | GEAR ASSEMBLY: same as O1233. | 504 7200 002 | 2Z4878A-12 |
| O1235 | GEAR ASSEMBLY: same as O1233. | 504 7200 002 | 2Z4878A-12 |
| O1236 | GEAR ASSEMBLY: same as O1233. | 504 7200 002 | 2Z4878A-12 |
| O1237 | CLAMP: shaft coupling; extruded aluminum; anodized; 0.664 in. dia by 0.200 in. thk. | 504 7537 002 | 2Z2642.616 |
| O1238 | CLAMP: same as O1237. | 504 7537 002 | 2Z2642.616 |
| O1239 | CLAMP: same as O1237. | 504 7537 002 | 2Z2642.616 |
| O1240 | CLAMP: same as O1237. | 504 7537 002 | 2Z2642.616 |
| O1241 | CLAMP: same as O1237. | 504 7537 002 | 2Z2642.616 |
| O1242 | CLAMP: same as O1237. | 504 7537 002 | 2Z2642.616 |
| O1243 | CLAMP: same as O1237. | 504 7537 002 | 2Z2642.616 |
| O1244 | CLAMP: same as O1237. | 504 7537 002 | 2Z2642.616 |
| O1245 | CLAMP: same as O1237. | 504 7537 002 | 2Z2642.616 |
| O1245.1 | CLAMP: same as O1237. | 504 7537 002 | 2Z2642.616 |
| O1245.2 | CLAMP: same as O1237. | 504 7537 002 | 2Z2642.616 |
| O1246 | WASHER, flat: SS type 302; round; 0.3140 in. ID, 0.8125 in. OD by 0.062 in. thk. | 504 7468 001 | 6L58025-55 |
| O1247 | WASHER, flat: same as O1246. | 504 7468 001 | 6L58025-55 |
| O1248 | SPRING: helical torsion; arm, cam; SS type 430, 0.0400 in. dia wire; 0.320 in. lg by 0.3281 in. dia; 6-1/2 turns; RH turns. | 594 9488 002 | |
| O1250 | SPRING: gear loading; SS type 302, 053 in. dia wire; 7/8 in. mean dia; both ends bent at 1/32 in. rad for 7/64 in. | 594 9495 002 | |
| O1251 | SPRING: spiral torsion; SS type 302; 8.5 in. lg by 0.150 in. w by 0.032 in. thk; 0.062 in. dia loop ea end. | 594 9496 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| O1252 | GEAR: spur; c/o bearing pressed to gear; 36 teeth; 48 pitch; 0.7500 PD; 0.375 in. lg by 0.7916 in. dia o/a. | 594 9497 002 | |
| O1253 | GEAR: spur; aluminum; anodized; 30 teeth; 48 pitch; 0.6250 in. PD; 0.6666 in. OD by 0.368 in. lg. | 594 9506 002 | |
| O1254 | GEAR: spur; c/o bearing pressed to gear; 36 teeth; 48 pitch; 0.7500 in. PD; 0.375 in. lg by 0.7916 in. dia o/a. | 594 9510 002 | |
| O1255 | GEAR: spur; c/o bearing pressed to gear; 72 teeth; 48 pitch; 1.500 in. PD; 1.5416 in. OD by 0.2656 in. lg o/a. | 594 9511 002 | |
| O1256 | GEAR: spur; c/o bearing pressed to gear; 36 teeth; 48 pitch; 0.7500 in. PD; 0.375 in. lg by 0.7916 in. dia o/a. | 594 9512 002 | |
| O1257 | GEAR: spur; c/o bearing pressed to gear; 36 teeth; 48 pitch; 0.7500 in. PD; 0.375 in. lg by 0.7916 in. dia o/a. | 594 9513 002 | |
| O1258 | GEAR: spur; c/o bearing pressed to gear; 72 teeth; 48 pitch; 1.5000 in. PD; 0.3125 in. lg and 1.5416 in. dia o/a. | 594 9522 002 | |
| O1259 | GEAR: spur; SS type 303; clamped; 36 teeth; 48 pitch; 0.7500 in. PD; 0.6875 in. lg by 0.7916 OD. | 594 9523 002 | |
| O1260 | GEAR: spur; c/o bearing pressed to gear; 54 teeth; 48 pitch; 1.1250 in. PD; 0.375 in. lg by 1.1666 in. dia o/a. | 594 9527 002 | |
| O1261 | GEAR: spur; c/o bearing pressed to gear; 96 teeth; 48 pitch; 2.0000 PD; 0.375 in. lg by 2.0416 in. dia o/a. | 594 9529 002 | |
| O1262 | SHAFT: switch; SS type 303; cylindrical; 1.656 in. lg by 0.2485 in. dia o/a. | 594 9530 002 | |
| O1263 | GEAR: spur; SS type 303; clamped; 48 teeth; 48 pitch; 1.000 in. PD; 0.437 in. lg by 1.0416 in. dia. | 594 9531 002 | |
| O1265 | GEAR: spur; c/o bearing pressed to gear; 57 teeth; 48 pitch; 1.1875 PD; 0.375 in. lg by 1.2291 in. dia o/a. | 594 9551 002 | |
| O1266 | GEAR: spur; aluminum; anodized; 57 teeth; 48 pitch; 1.1875 PD; 0.156 in. lg by 1.2291 in. OD. | 594 9552 002 | |
| O1267 | GEAR: spur; aluminum; anodize; 57 teeth; 48 pitch; 1.1875 PD; 0.444 in. lg by 1.2291 in. OD. | 594 9553 002 | |
| O1268 | GEAR: spur; aluminum; anodize; Autopositioner; 90 teeth; 48 pitch; 1.8750 PD; 0.140 in. lg by 1.9166 in. OD. | 594 9554 002 | |
| O1269 | SHAFT: aluminum; chromate dip; cylindrical; 1.5937 in. lg by 0.187 in. dia o/a. | 594 9559 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| O1270 | GEAR: spur; aluminum, anodized; Autopositioner; 86 teeth; 48 pitch; 1.7917 PD; 1.8333 in. OD; 0.140 in. thk. | 594 9576 002 | |
| O1271 | GEAR: spur; aluminum, anodized; 86 teeth; 48 pitch; 1.7917 PD; 1.8333 in. OD; 0.344 in. lg. | 594 9580 002 | |
| O1273 | GEAR: spur; aluminum, anodized; 76 teeth; 48 pitch; 1.5833 in. PD; 1.6249 in. OD by 0.187 in. lg. | 594 9594 002 | |
| O1274 | GEAR: spur; c/o bearing pressed to gear; 60 teeth; 48 pitch; 1.2500 PD; 1.2916 in. OD by 0.370 in. lg. | 594 9605 002 | |
| O1275 | GEAR: spur; SS type #303; straight teeth; 60 teeth; 48 pitch, 1.2500 in. PD; 1.2916 in. OD. | 594 9469 002 | |
| O1276 | BEARING, roller: single row axial; needle type; cylindrical rollers; open end; Torrington type DC #GB-36. | 309 0303 00 | |
| O1277 | GEAR ASSEMBLY: c/o 24 tooth, SS type 303 pinion gear w/ bearing pressed into 98 tooth, phosphor bronze gear; 0.370 in. lg by 1.6612 in. OD. | 594 9606 002 | |
| O1278 | GEAR: spur; c/o bearing pressed to gear; 29 teeth; 48 pitch; 0.6042 in. PD; 0.6458 in. OD by 0.370 in. lg o/a. | 594 9607 002 | |
| O1279 | GEAR: spur; same as O1278. | 594 9607 002 | |
| O1280 | GEAR: spur; SS type 303; straight teeth; 29 teeth; 48 pitch; 0.6042 in. PD; 0.6458 in. OD. | 594 9471 002 | |
| O1281 | BEARING, roller: same as O1276. | 309 0303 00 | |
| O1282 | GEAR: spur; same as O1280. | 594 9471 002 | |
| O1283 | BEARING, roller: same as O1276. | 309 0303 00 | |
| O1284 | GEAR ASSEMBLY: c/o 18 tooth, SS type 303 pinion gear w/ bearing pressed into phosphor bronze, 68 tooth gear; 0.281 in. lg by 1.4582 in. OD. | 594 9608 002 | |
| O1285 | BEARING, roller: single row axial; needle type; cylindrical rollers; open end; Torrington type DC, #GB2-1/4 4. | 309 0301 00 | |
| O1286 | GEAR ASSEMBLY: c/o 18 tooth SS type 303 pinion gear w/ bearing pressed into 68 tooth phosphor bronze gear; 0.245 in. lg by 1.0937 in. dia o/a. | 594 9609 002 | |
| O1287 | BEARING, roller: same as O1285. | 309 0301 00 | |
| O1288 | GEAR: spur; c/o bearing pressed to gear; 57 teeth; 0.8906 PD; 64 pitch; 0.172 in. lg by 0.9218 in. OD. | 594 9610 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| O1289 | GEAR ASSEMBLY: c/o 42 tooth, 48 pitch, 0.8750 PD gear staked to 84 tooth, 48 pitch; 1.7500 PD gear; 0.4531 lg by 1.7916 OD. | 594 9611 002 | |
| O1290 | SHAFT SUBASSEMBLY: c/o phosphor bronze, 48 pitch, 72 teeth, 1.500 in. PD gear staked to SS type 303 shaft; 27/32 in. lg by 1.5416 in. dia o/a. | 594 9612 002 | |
| O1291 | COUPLING, rigid: split hub; 1.00 in. dia; SS #303. | 594 9693 003 | |
| O1292 | COUPLING, rigid: same as O1291. | 594 9693 003 | |
| O1293 | COUPLING HALF, shaft: split hub; 0.1875 in. ID; 0.343 in. lg by 0.875 in. dia; SS type 303. | 594 9694 003 | |
| O1294 | COUPLING HALF, shaft: same as O1293. | 594 9694 003 | |
| O1295 | COUPLING HALF, shaft: same as O1293. | 594 9694 003 | |
| O1296 | SHAFT SUBASSEMBLY: c/o 76 tooth gear soldered to SS drive shaft; 1.625 in. dia by 2-3/32 lg o/a. | 594 9620 002 | |
| O1297 | CAM SUBASSEMBLY: c/o #303, 48 tooth, 1.000 PD gear pressed into 0.1 mc, brass cam; 1.0416 in. dia by 0.8281 in. lg o/a. | 594 9622 002 | |
| O1298 | SHAFT SUBASSEMBLY: c/o SS #303, 80 tooth, 1.250 PD gear; 12 position stop wheel silver soldered to 0.1 mc shaft; 2-1/32 in. lg by 1.2812 in. dia approx o/a. | 594 9623 002 | |
| O1299 | SHAFT SUBASSEMBLY: c/o SS #303, 40 tooth, 0.6250 in. PD gear and 6 position stop wheel silver soldered to 1.0 mc shaft; 2-1/32 in. lg by 1.125 in. dia o/a. | 594 9624 002 | |
| O1299.1 | SHAFT SUBASSEMBLY: c/o SS #303, 80 tooth 64 pitch gear and 18 position stop wheel silver soldered to 10.0 mc shaft; 1-3/4 in. lg by 1.2812 in. dia o/a. | 594 9625 002 | |
| O1299.3 | BEARING, sleeve: flange type; oilite; porous bronze; Amplex #F-209-4. | 309 0144 00 | |
| O1299.4 | ARM SUBASSEMBLY: cam; c/o roller shaft and 42 tooth gear pressed to cam follower arm; 1.4375 in. lg by 1/2 in. w by 2.3437 in. h o/a. | 594 9669 003 | |
| O1299.5 | GEAR ASSEMBLY: c/o four 21 tooth pinions w/ shaft pressed to 84 tooth gear w/ shaft; 1.875 in. lg by 1.7916 in. dia o/a. | 594 9670 003 | |
| O1299.6 | GEAR ASSEMBLY: idler; c/o a 57 tooth, 38 tooth and 57-38 tooth staked gear pinned to shaft; 1-9/16 in. lg by 1.2291 in. dia o/a. | 594 9671 003 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| O1299.7 | SHAFT SUBASSEMBLY: c/o 72 tooth; 48 pitch; 1.500 in. PD gear pinned to shaft; 1.3125 in. lg by 1.5416 in. dia o/a. | 594 9629 002 | |
| O1299.8 | GEAR ASSEMBLY: c/o 84 tooth, 48 pitch, 1.7500 PD gear staked to 57 tooth, 48 pitch, 1.1875 in PD gear w/ bearing; 0.3828 in. lg by 1.7916 in. dia o/a. | 594 9630 002 | |
| O1299.9 | ARM SUBASSEMBLY: cam; c/o follower arm w/ pin, follower hub w/ bearing sleeve and 108 tooth, 48 pitch, 2.250 PD sector gear; 0.750 in. lg by 1.421 in. w by 1.7187 in. h o/a. | 594 9631 002 | |
| O1299.10 | GEAR ASSEMBLY: c/o 96 tooth, 2.000 PD gear, 30 tooth, 0.6250 in. PD switch gear riveted to plate; 15/16 in. lg by 4-1/2 in. w by 4-3/16 in. h approx o/a. | 594 9633 002 | |
| O1299.11 | GEAR: spur; c/o bearing pressed to gear; 96 teeth; 48 pitch; 2.000 PD; 0.3125 in. lg by 2.0416 in. dia o/a. | 594 9518 002 | |
| O1299.12 | GEAR: spur; SS type 303; switch; 30 teeth; 48 pitch; 0.6250 in. PD; 0.9218 in. lg by 0.6666 in. OD. | 594 9520 002 | |
| O1299.13 | GEAR ASSEMBLY: c/o four 18 tooth pinions w/ shaft pinned to 72 tooth gear w/ hub; 1.3125 in. lg by 1.5416 in. dia o/a. | 594 9674 003 | |
| O1299.14 | HUB: crown; bronze per MIL-B-5687A; 0.275 in. lg by 0.375 in. dia o/a. | 594 9577 002 | |
| O1299.16 | HUB: same as O1299.14. | 594 9577 002 | |
| O1299.18 | HUB: same as O1299.14. | 594 9577 002 | |
| O1299.20 | HUB: same as O1299.14. | 594 9577 002 | |
| O1299.22 | SHAFT SUBASSEMBLY: c/o aluminum, 72 tooth; 48 pitch; 1.5000 PD gear staked to SS type 303 shaft; 1.5416 in. dia by 1.7183 in. lg o/a. | 594 9613 002 | |
| O1299.23 | SHAFT SUBASSEMBLY: c/o SS type 302, 90 tooth, 1.8750 PD gear staked to shaft; 1.9166 in. dia by 1.3281 in. lg o/a. | 594 9614 002 | |
| O1299.24 | GEAR: 84 teeth; 48 pitch; 1.7500 PD w/ bearing and spring stud; 1.8281 in.lg by 1.7916 in. dia o/a. | 594 9617 002 | |
| O1299.25 | GEAR: brass; 76 tooth; 48 pitch; 1.5833 PP; w/ spring; O.260 in. lg by 1.6249 in. dia o/a. | 594 9618 002 | |
| O1299.26 | CAM SHAFT: commercial brass; 0.1 plus 1.0 mc cam; SS type 303 shaft; 1.8281 in. lg by 1-1/2 in. dia approx o/a. | 594 9619 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| O1299.28 | HUB: dial; c/o retaining pin pressed into hub; 23/64 in. thk by 1/4 in. ID by 1-5/8 in. OD. | 593 0989 002 | |
| O1299.29 | DRUM-DETENT, subassembly: c/o 1 drum detent, 2 drum rings, 1 switch actuating bar and assorted hdwe and wire; cylindrical shape; 1-1/4 in. dia by 4-1/4 in. lg. | 593 0990 002 | |
| O1299.30 | HUB: right; aluminum, black anodize finish; 1/8 in. thk by 0.254 in. ID by 1-1/2 in. OD. | 593 1005 002 | |
| O1299.31 | SPRING: cam arm, tension, SS type 302, 0.023 in. dia wire; 0.190 in. OD; 40 coils. | 594 9494 002 | |
| O1299.32 | GEAR ASSEMBLY: drum-drive; c/o 2 miter gears, 2 bearings, 3 rollpins retaining ring, dial hub, drum shaft, switched shaft, drum bracket and hardware. | 593 1011 003 | |
| O1299.33 | HUB: channel spacer; SS type 303, passivate finish; 0.187 in. ID by 0.375 in. OD by 0.187 in. d; two no. 4-48 NF-2B tapped holes spaced 0.187 in. c to c. | 593 1002 002 | |
| O1299.34 | SHAFT: A/P channel; c/o wheel stop; SS shaft and 80 tooth gear; 1.281 in. dia by 1.703 in. lg approx o/a. | 593 1008 002 | |
| O1299.35 | SPRING: helical compression; stainless steel type 302, passivate finish; 0.245 in. OD by 0.875 in. lg; 12 turns. | 593 0993 002 | |
| O1299.36 | SPRING: same as O1299.35. | 593 0993 002 | |
| O1299.37 | RETAINER, spring: same as O1005. | 593 1255 002 | |
| O1299.38 | GEAR: spur; 18 teeth, 0.28125 pitch dia, 20° pressure angle. | 594 9459 002 | |
| P1201 | CONNECTOR, plug: 18 rd, male contacts; straight shape; 3 amps; Winchester Electric p/n MRE18P-G. | 372 1050 00 | |
| S1201 | SWITCH SECTION, rotary: 1 pole, 18 position; shorting type; -70° to +125°C ambient temp; coin silver blades, spring silver clips; Oak type LK. | 044 5836 97 | |
| S1202 | SWITCH SECTION, rotary: 2 pole, 18 position; special type; -70°C to +125°C ambient temp; coin silver blades, spring silver clips; Oak type LK. | 044 5839 97 | |
| S1203 | SWITCH SECTION, rotary: 2 pole, 12 position; front blade shorting, rear blade, nonshorting coin silver blades, spring silver clips; Oak type JK. | 044 5838 97 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| S1204 | SWITCH SECTION, rotary: 2 pole, 12 position; front blade shorting, rear blade, nonshorting; coin silver blades, spring silver clips; Oak type JK. | 044 5838 97 | |
| S1205 | SWITCH SECTION, rotary wafer: 2 pole, 20 position; phenolic ins; spring silver clips, coin silver blades; Oak type RK. | 044 5901 97 | |
| S1206 | SWITCH SECTION, rotary wafer: 2 pole, 20 position; phenolic ins; spring silver clips, coin silver blades; Oak type RK. | 044 5901 97 | |
| S1210 | MEMORY DRUM ACTUATED SWITCH: leaf type; multiple pole; 32 poles total; 20 normally open, 12 normally closed; drum actuated. | 594 9686 004 | |
| W1201 | CABLE ASSEMBLY: frequency selector; c/o connector, 2 switches; connector shield; spacer, stud wire and assorted hdwe (incl P1201, S1205 and S1206). | 593 1018 004 | |
| W1202 | CABLE, RF: c/o 3 rotary switches; one 41 pin connector; and wire. | 593 0987 00 | |
| C1301 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| C1302 | CAPACITOR, fixed: ceramic; CC21CH070D; 7.0 mmf ±1/2 mmf; 500 vdcw. | 916 1071 00 | |
| C1303 | CAPACITOR, fixed: ceramic; same as C1302. | 916 1071 00 | |
| C1304 | CAPACITOR, fixed: same as C103. | 912 0667 00 | 3D9500-213 |
| CR1301 | CRYSTAL UNIT, rectifying: silicon; 0.5 uuf shunt; 50 ma current; Sylvania Prod. p/n 1N193. | 353 2522 00 | |
| CR1302 | CRYSTAL UNIT, rectifying: same as CR1301. | 353 2522 00 | |
| E1301 | INSULATOR, standoff: same as E102. | 306 0413 00 | |
| E1302 | INSULATOR, standoff: same as E102. | 306 0413 00 | |
| P1301 | CONNECTOR, plug: same as P102. | 357 9018 00 | 2Z7390-88 |
| P1302 | CONNECTOR, plug: same as P102. | 357 9018 00 | 2Z7390-88 |
| *R1301 | RESISTOR, fixed: composition; same as R810. | 745 1384 00 | |
| *R1301 | RESISTOR, fixed: composition; RC20GF682K; 6800 ohms ±10%; 1/2 w power dissipation. | 745 1387 00 | 3RC20GF682K |
| *R1301 | RESISTOR, fixed: composition; same as R516. | 745 1391 00 | |

*Selected per operational requirements

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| *R1301 | RESISTOR, fixed: composition; same as R205. | 745 1394 00 | 3RC20GF103K |
| *R1301 | RESISTOR, fixed: composition; same as R527. | 745 1398 00 | 3RC20GF123K |
| *R1301 | RESISTOR, fixed: composition; same as R407. | 745 1401 00 | 3RC20GF153K |
| *R1301 | RESISTOR, fixed: composition; same as R303. | 745 1405 00 | 3RC20GF183K |
| *R1301 | RESISTOR, fixed: composition; same as R208. | 745 1408 00 | 3RC20GF223K |
| R1302 | RESISTOR, fixed: composition; MIL #RC20GF102K; 1000 ohms ±10% tol; 1/2 w power dissipation; MIL-R-11. | 745 1352 00 | 3RC20GF102K |
| R1303 | RESISTOR, fixed: composition; MIL #RC20GF470K; 47 ohm ±10%; 1/2 w power Dissipation; MIL-R-11. | 745 1296 00 | 3RC20GF470K |
| R1306 | RESISTOR, fixed: composition; same as R1303. | 745 1296 00 | 3RC20GF470K |
| R1307 | RESISTOR, fixed: composition; same as R1302. | 745 1352 00 | 3RC20GF102K |
| *R1308 | RESISTOR, fixed: composition; same as R810. | 745 1384 00 | |
| *R1308 | RESISTOR, fixed: composition; same as R1301. | 745 1387 00 | 3RC20GF682K |
| *R1308 | RESISTOR, fixed: composition; same as R516. | 745 1391 00 | |
| *R1308 | RESISTOR, fixed: composition; same as R205. | 745 1394 00 | 3RC20GF103K |
| *R1308 | RESISTOR, fixed: composition; same as R527. | 745 1398 00 | 3RC20GF123K |
| *R1308 | RESISTOR, fixed: composition; same as R407. | 745 1401 00 | 3RC20GF153K |
| *R1308 | RESISTOR, fixed: composition; same as R303. | 745 1405 00 | 3RC20GF183K |
| *R1308 | RESISTOR, fixed: composition; same as R208. | 745 1408 00 | 3RC20GF223K |
| W1301 | CABLE ASSEMBLY, power: c/o 2-3/4 ft. coaxial cable terminated one end w/ 1 pin connector, other end unprocessed; incl P1301. | 593 0761 002 | |
| W1302 | CABLE ASSEMBLY, power: same as W1301; incl P1302. | 593 0761 002 | |
| C1401 | CAPACITOR, fixed: paper dielectric; 100,000 uuf ±10%, 600 vdcw; Sprague #P50477. | 930 0383 00 | 3DB10-295 |
| C1402 | CAPACITOR, fixed: paper dielectric; same as C1401. | 930 0383 00 | 3DB10-295 |
| C1403 | CAPACITOR, fixed: paper dielectric; 100,000 uuf ±15%, 600 vdcw; Sprague type no. Y27106. | 961 4168 00 | 3DA100-731 |

*Selected per operational requirements

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| C1404 | CAPACITOR, fixed: paper dielectric; 400,000 uuf ±10%, 600 vdcw; MIL-C-25 type CP70B1EF405K. | 962 4318 00 | |
| C1405 | CAPACITOR, fixed: paper dielectric; same as C1401. | 930 0383 00 | 3DB10-295 |
| C1406 | CAPACITOR, fixed: electrolytic; 150 mf +75% -15% tol 50 vdcw; polarized: GE29F476. | 184 7173 00 | |
| CR1401 | RECTIFIER, metallic: 300 v, germanium; c/o 2 mtg brackets, rectifier and assorted hdwe; 1-5/8 in. w by 2-3/16 in. h by 4-9/16 in. lg approx o/a. | 593 1431 003 | |
| CR1402 | RECTIFIER, metallic: same as CR1401. | 593 1431 003 | |
| CR1403 | RECTIFIER, silicon: high current silicon rectifier; GE cat.#4JA60F. | 044 0057 353 | |
| CR1404 | RECTIFIER, silicon: high current silicon rectifier; GE cat.#4JA60F. | 044 0057 353 | |
| CR1405 | RECTIFIER, silicon: high current silicon rectifier; GE cat.#4JA60F. | 044 0057 353 | |
| CR1406 | RECTIFIER, silicon: high current silicon rectifier; GE cat.#4JA60F. | 044 0057 353 | |
| CR1407 | RECTIFIER, metallic: 125 v, germanium; c/o two mtg brackets, rectifier and assorted hdwe; 1-5/8 in. w by 1.812 in. h by 4.593 in. lg approx o/a. | 593 1430 003 | |
| CR1408 | RECTIFIER, metallic: selenium, input voltage 20.6 vac, output 23.0 vdc; Fansteel Metallur type EC1034. | 044 0005 353 | |
| CR1409 | RECTIFIER, metallic: same as CR1. | 044 0417 97 | |
| E1401 | TERMINAL, lug: burnished tin; screw type; 1/2 in. w by 11/16 in. h; H. B. Jones p/n 50. | 367 1000 00 | |
| E1402 | TERMINAL, lug: rd tongue end; brass, hot tin dipped; 0.064 in. thk by 0.390 in. w by 1 in. lg. | 593 0873 002 | |
| E1403 | TERMINAL, stud: same as E1. | 306 0234 00 | 3Z12101-47 |
| E1404 | TERMINAL, stud: same as E1. | 306 0234 00 | 3Z12101-47 |
| E1405 | PLATE, electrical shield: carbon steel cadmium plated; 3-1/2 in. lg by 3-5/16 in. w by 1/4 in. thk; 6-32 NC-2B by 3/16 in. d hole in c of one end. | 593 1397 002 | |
| E1406 | PLATE, electrical shield: carbon steel, cadmium plated; 3-1/2 in. by 3-5/16 in. by 3/8 in. thk; 6-32 NC-2B by 3/16 in. d hole in c of one end. | 593 1398 002 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| E1407 | PLATE, electrical shield: rectifier; carbon steel, cadmium plated; 3-1/2 in. lg by 3-5/16 in. by 1/4 in; 6-32 NC-2B by 3/16 in. hole one end. | 593 1402 002 | |
| F1401 | FUSE, cartridge: same as F704. | 264 0114 00 | |
| F1402A | FUSE, cartridge: 125 vdc, 5 amp; 0.250 in. dia by 1-1/4 in. lg; Buss #MDX-5. | 264 0218 00 | |
| F1402B | FUSE, cartridge: MIL #F02D3R00B; 125 vdc, 3 amp; 0.250 in. dia by 1-1/4 in. lg; MIL-F-15160. | 264 0009 00 | 3Z2603.17 |
| F1403A | FUSE, cartridge: 125 vdc, 3-2/10 amp; 0.250 in. dia by 1-1/4 in. lg; Buss MDX-3-2/10. | 264 0216 00 | |
| F1403B | FUSE, cartridge: 125 vdc, 1-6/10 amp; 0.250 in. dia by 1-1/4 in. lg; Buss #MDL-1-6/10. | 264 0212 00 | |
| F1404A | FUSE, cartridge: 125 vdc, 1-1/4 amp; 0.250 in. dia by 1-1/4 in. lg; Buss #MDL-1-1/4. | 264 0211 00 | |
| F1404B | FUSE, cartridge: 250 vdc, 8/10 amp; 0.250 in. dia by 1-1/4 in. lg; Buss #MDL-8/10. | 264 0210 00 | |
| F1405 | FUSE, cartridge: same as F704. | 264 0114 00 | |
| F1406 | FUSE, cartridge: same as F704. | 264 0114 00 | |
| F1407 | FUSE, cartridge: same as F702. | 264 4020 00 | 3Z2587 |
| F1408 | FUSE, cartridge: 250 vdc, 1/8 amp; 0.250 in. dia by 1-1/4 in lg; Buss #MDL-1/8. | 264 0290 00 | |
| I1401 | LAMP, glow: same as I701. | 262 0179 00 | 6Z6828-4 |
| K1401 | RELAY ARMATURE: contact arrangement spst N.O., dpst N.O.; 100 amps at 29 vdc, 25 amps at 115 vac and 10 amps at 230 vac; Leach Relay type no. 9022. | 044 0001 401 | |
| L1401 | REACTOR, filter: 4.0 hy min at 10 v rms, 60 cps; 55 ohms dc resistance; 400 ma dc. | 044 3391 01 | |
| L1402 | REACTOR, filter: same as L1401. | 044 3391 01 | |
| L1403 | REACTOR, filter: 6.0 hy min at 10 v rms, 60 cps; 100 ohms dc resistance; 150 ma dc. | 044 3392 01 | |
| L1404 | REACTOR, filter: same as L1403. | 044 3392 01 | |
| P1401 | CONNECTOR, plug: electrical; 20 rd male cont. 1, 3, 4, 7, 12, 15, 16, 18 cont - 10 amps, 620 vdc; 8, 9, 10, 11 cont - 10 amp 2025 vdc; 2, 5, 16, 13, 14, 17 cont - (Cont) | 044 2089 98 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| P1401 | (Cont) 15 amp, 2025 vdc; A, A2 cont - 40 amp, 1000 vdc Cannonelec type DPD-20-34P(SPL). | | |
| R1401 | RESISTOR, fixed: wire wound; MIL #RW30V310; 31 ohms ±5%, 11 w; MIL spec MIL-R-26. | 747 0221 00 | |
| R1402 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| R1403 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| R1404 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| R1405 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| R1406 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| R1407 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| R1408 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| R1409 | RESISTOR, fixed: composition; same as R318. | 745 1464 00 | 3RC20GF474K |
| S1401 | SWITCH, toggle: dpdt; JAN-ST52N; 30 amp continuous current carrying capacity; metal case; 1-21/64 in. lg by 49/64 in. w by 3/4 in. d body; 11/64 in. lg bat type handle; 2 position solder lug term; 15/32 in. -32 NS-2 by 15/32 in lg mtg bushing; JAN-S-23. | 266 3060 00 | 3Z9863-52N |
| S1402 | SWITCH, toggle: 4 pdt; 125 vac, 20 amp locking position, 30 vdc, 30 amp locking position, 30 amp continuous current; 1-7/16 in. lg by 1-5/16 in. w by 1-7/32 in. deep over-all; 11/16 in. lg; bat type handle; Cutler-Hammer Inc. #7665K3. | 266 0072 00 | |
| S1403 | SWITCH, toggle: #ST42D, spdt; 2 switching positions; 250 vac, 40 amps nom, 15 amp resistive, 6 amp inductive; 30 vdc, 20 amp nom, 0.75 amp resistive, 0.5 amp inductive; 41/64 in. by 1-1/16 in. by 1-9/64 in.; bat type handle; JAN-S-23. | 266 3075 00 | 3Z9863-420 |
| S1404 | SWITCH, toggle: same as S1402. | 266 0072 00 | |
| S1405 | SWITCH, toggle: same as S1401. | 266 3060 00 | 3Z9863-52N |
| S1406 | SWITCH, toggle: same as S1401. | 266 3060 00 | 3Z9863-52N |
| S1407 | SWITCH, toggle: same as S1401. | 266 3060 00 | 3Z9863-52N |
| S1408 | SWITCH, toggle: same as S1401. | 266 3060 00 | 3Z9863-52N |
| T1401 | FILTER, band-pass: 115 kc ±800 cps; 15,000 ohm input and 15,000 ohm output impedance; 1-17/32 in. w by (Cont) | 044 3372 01 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| T1401 | (Cont) 1-17/32 in. lg by 2.875 in. h o/a; Freed Trans. | | |
| T1402 | TRANSFORMER, power: stepup - stepdown; primary 115 or 230 v, 50/60 cps; secondary 210 v and 26.6 v at 4.2 amps tapped at 6.3, 12.6, 18.9 v. | 044 3471 01 | |
| T1403 | TRANSFORMER, power: stepdown; primary 115 or 230 v, 50/60 cps; secondary 28 v at 0.200 amps. | 044 3521 01 | |
| W1401 | CABLE, RF: c/o 11 terminals, one 20 pin connector and wire. | 593 1380 00 | |
| XF1401 | HOLDER, fuse: same as XF701. | 044 0001 265 | |
| XF1402 | HOLDER, fuse: same as XF701. | 044 0001 265 | |
| XI1401 | LIGHT, indicator; brass, nickel plated; 0.562 in. dia by 1.312 in. lg o/a. | 044 0004 262 | |
| Z1401 | RECTIFIER ASSEMBLY: 50 amp; c/o 4 rectifiers; 2 mtg plates, 3 rectifier plates, 4 studs, spacers and hardware. | 593 1433 004 | |
| A1501 | SCROLL-CABINET, blower: c/o 4 bushings pressed to aluminum scroll; 1-21/32 in. d by 6-11/32 in. w by 6-29/32 in. lg approx o/a. | 593 1794 003 | |
| A1502 | SPIDER: SS, passivate finish; 3 radiating arms; three 0.156 in. dia holes equally spaced on 1.625 in. dia bolt circle and three 0.156 in. dia holes on 4.625 in. dia bolt circle. | 593 0883 002 | |
| A1503 | BRACKET SUBASSEMBLY: filter mtg; c/o terminal secured to bracket; 15/16 in. w by 1-5/32 in. h by 1-5/16 in. d approx o/a dim. | 593 0914 002 | |
| A1504 | COVER, electrical connector: metallic; 23/32 in. dia, 1-9/32 in. lg approx; pressed fit type mtg w/ locking sleeve for securing; Amphenol Cat. no. 26-834. | 372 1115 00 | 6Z1732-1 |
| A1551 | MOUNTING, bracket: aluminum, chromate dip; 0.057 in. thk by 1-1/16 in. w by 1-27/32 in. h approx o/a; two 0.562 in. dia holes spaced 0.750 in. c to c. | 593 0918 002 | |
| A1552 | RUBBER STRIP, solid: for capacitor; synthetic rubber; 0.062 in. thk by 1-1/16 in. w by 2-1/32 in. lg. | 593 0923 002 | |
| A1553 | MOUNTING, bracket: capacitor; c/o aluminum bracket welded to aluminum plate; 1.812 in. w by 2.025 in. h by 4-19/32 in. lg. | 593 0965 003 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| A1554 | PLATE, blower: c/o 4 bushings rolled into plate; 21/32 in. h by 6-21/32 in. w by 6-5/8 in. lg o/a. | 593 0966 003 | |
| A1556 | COVER, electrical connector: same as A1504. | 372 1115 00 | 6Z1732-1 |
| B1501 | MOTOR, direct current: input voltage 26.4 vdc, 20 v min, 30 max; input current 2.25 amp; continuous duty cycle; GE type 5P18FA1. | 044 0246 01 | |
| B1551 | FAN, centrifugal: 115 v, 60 cycle, single phase, ac nominal; input w 40 at full load, 3100 rpm nominal, continuous duty cycle; Rotron Mfg Co. Cat. no. 3439. | 044 0246 01 | |
| C1551 | CAPACITOR, fixed: paper; 1.0 mf +20% -10%; 220 vdcw; Sprague #55P2. | 930 0469 00 | |
| E1501 | TERMINAL, lug: brass; 0.018 in. by 5/16 in. by 41/64 in. approx; Shakeproof Cat. no. 2504-08-00. | 304 0274 00 | |
| FL1501 | FILTER, radio interference: 5.0 amps, 50 vdc; 3 term, coil and capacitor type, hermetically sealed in metallic case; Sprague, type 5JX27. | 044 0001 241 | |
| H1501 | NUT, plain, hexagon: stainless steel type 430F; plain finish; no. 1/2-20 NF-2 thd; 5/8 in. hex by 1/8 in. thk; Pheoll. | 334 0010 00 | |
| H1502 | WASHER, lock: SS type 410, plain finish; rd; 0.022 in. thk, 0.512 in. ID, 0.630 in. OD; Shakeproof Cat. no. 1724-02*. | 373 0086 00 | |
| H1503 | SCREW, machine: stainless steel type 430; Phillips recessed panhead; no. 6-32 NC-2A thd by 5/8 in. lg; Pheoll. | 343 0173 00 | 6L6632-10.9SPH |
| H1504 | SCREW, machine: SS type 430; Phillips recessed panhead no. 6-32 NC-2A thd by 1/2 in. lg; Pheoll. | 343 0171 00 | 6L6632-8.9SPH |
| H1505 | SCREW, machine: SS type 430; Phillips recessed panhead; no. 6-32 NC-2A thd by 1/4 in. lg; Pheoll. | 343 0167 00 | 6L6632-4.8SPH2 |
| H1506 | NUT, lock: SS, plain finish; no. 6-32 NC-2 thd; 5/16 in. across flats, 11/64 in. h; Esna p/n 79M-62. | 333 0060 00 | |
| H1507 | WASHER, lock: SS type 410, plain finish; rd; external teeth; 0.020 in. thk, 0.150 in. ID, 0.317 in. OD; Shakeproof Cat. no. 1606-00. | 373 8020 00 | 6L72606 |
| H1508 | WASHER, flat: SS type 302; rd; 0.032 in. thk by 0.147 in. ID by 0.312 in. OD; Wrought Washer. | 310 0046 00 | 6L58006-10 |
| H1509 | CLAMP, loop: nylon; 0.045 in. thk, 0.21 in. ID, 0.38 in. w 0.173 in. dia mtg hole; Burndy Eng. Co. Inc. Cat no. HP-3N. | 150 1540 00 | |

* alternate tooth twist

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| H1510 | SCREW, machine: SS type 430; Phillips recessed panhead; no. 6-32 NC-2A thd by 3/4 in. lg; Pheoll. | 343 0174 00 | |
| H1511 | SCREW, machine: SS type 430; Phillips recessed panhead; no. 6-32 NC-2A thd by 1-3/4 in. lg; Pheoll. | 343 0181 00 | |
| H1512 | SPRING, retainer: beryllium copper; 0.138 in. ID approx by 0.155 in. OD by 1/8 in. lg; 1/64 in. gap in spring; Lewis Spring Co. | 340 0641 00 | |
| H1551 | WASHER, lock: same as H1054. | 310 0282 00 | |
| H1552 | NUT, hexagon: No-4-40 thd; SS, plain finish; class 2; Pheoll. | 313 0043 00 | 6L3604-40-4-1 |
| H1553 | SPRING, retainer: beryllium copper; 0.138 in. ID approx by 0.155 in. OD by 1/8 in. lg; 1/64 in. gap in spring; Lewis Spring Co. | 340 0641 00 | |
| H1554 | SCREW, machine: SS type 430; Phillips flat recessed head; no. 4-40 NC-2A thd by 1/2 in. lg; Pheoll. | 342 0048 00 | |
| H1555 | SCREW, machine: same as H1239. | 342 0078 00 | |
| H1556 | SCREW, machine: SS type 430; Phillips recessed fillister head; no. 6-32 NC-2A thd by 3/4 in. lg; Pheoll. | 347 0039 00 | |
| H1557 | WASHER, flat: same as H1258. | 310 0045 00 | 6L58004-19 |
| H1558 | WASHER, lock: same as H1001. | 310 0279 00 | |
| H1559 | CLAMP, loop: nylon, 0.045 in. thk, 0.27 in. ID, 0.38 in. w 0.173 in. dia mtg hole; Burndy Eng. Co. Inc. Cat. no. HP-4N. | 150 1541 00 | |
| H1560 | CLAMP, loop: same as H1509. | 150 1540 00 | |
| H1561 | WASHER, flat: SS type 302; rd; 0.036 in. thk by 0.172 in. ID by 0.437 in. OD; Wrought Washer. | 310 0048 00 | 6L58022-118 |
| H1562 | WASHER, lock: SS type 302; split helical ring type; 0.031 in. thk by 0.168 in. ID by 0.280 in. OD; Harper Mfg Co. | 310 0283 00 | |
| H1563 | SCREW, machine: same as H1063. | 343 0189 00 | |
| O1501 | IMPELLER, fan, centrifugal: 28 paddle type blades, cw rotation viewing closed end of wheel; steel, cadmium plated; Torrington #326-101-2. | 044 0424 97 | |
| P1501 | CONNECTOR, plug, electrical: 7 rd male contacts,plastic; 9/16 in. hex by 11/32 in. lg; no. 1/2-20 UNF-2A thd; Amphenol type no. 26. | 372 1537 00 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| P1550 | CONNECTOR, plug, electrical: same as P1501. | 372 1537 00 | |
| P1551 | NOT USED | 372 1537 00 | |
| E1601 | TERMINAL, lug: same as E1402. | 593 0873 002 | |
| E1602 | TERMINAL, lug: same as E1402. | 593 0873 002 | |
| E1604 | PLATE, grounding: phosphor bronze; silver plated; 0.010 in. thk by 5/8 in. w by 5-3/8 in. lg; 0.281 in. dia hole one end, 13/32 in.dia hole other end. | 593 0913 002 | |
| E1605 | PLATE, grounding: same as E1604. | 593 0913 002 | |
| J1601 | CONNECTOR, receptacle, electrical: 37 rd female contacts; straight. | 044 2091 98 | |
| J1602 | CONNECTOR, plug, electrical: 20 rd female contacts; straight; Cannonelec type no. DPD-20-33S(SPL). | 044 2088 98 | |
| J1603 | CONNECTOR, receptacle, electrical: 14 rd female contacts; straight; Amphenol 164-102-5S. | 044 0004 372 | |
| J1604 | CONNECTOR, receptacle, electrical: 30 rd female contacts; straight; Amphenol p/n 164-102-23S. | 044 0006 372 | |
| J1605 | CONNECTOR, receptacle, electrical: 2rd male contacts; straight; Amphenol p/n 164-101-2P. | 044 0003 372 | |
| J1606 | CONNECTOR, receptacle, electrical: 4 rd male contacts; straight; Amphenol p/n 164-102-18P. | 044 0005 372 | |
| J1607 | CONNECTOR, receptacle: 7 round female contacts, 500 vac; 1-1/2-20 UNF-2A thd; Amphenol type 26. | 372 1536 00 | |
| W1601 | CABLE ASSEMBLY, special purpose: c/o four connectors, wire, sleeving, nylon cord, connector assy, Fiberglas sleeving. | 593 0875 00 | |
| E1701 | KNOB: bar; olive drab zinc alloy; for 1/4 in. double flatted shaft w/6-32 screw; Electromatic #504-501. | 281 0090 00 | |
| E1702 | KNOB: bar type; zinc alloy; used on 1/4 in. shaft; 21/32 in. w by 0.467 in. h; Meyercord p/n 505-501. | 281 0091 00 | 2Z5821-184 |
| E1703 | KNOB: bar type; same as E1702. | 281 0091 00 | 2Z5821-184 |
| E1704 | KNOB: bar type; same as E1702. | 281 0091 00 | 2Z5821-184 |
| E1705 | KNOB: bar type; same as E1702. | 281 0091 00 | 2Z5821-184 |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| E1706 | KNOB: bar; olive drab zinc alloy; for 1/4 in. double flatted shaft w/ 6-32 screw; Electromatic type #502-501. | 281 0101 00 | |
| E1707 | TERMINAL, lug: brass, tin plated; 0.437 in. by 0.484 in. by 1 in.; one 0.120 in. dia hole to accom wire. | 593 0206 002 | |
| E1708 | TERMINAL, lug: same as E1707. | 593 0206 002 | |
| E1709 | TERMINAL, lug: same as E1707. | 593 0206 002 | |
| E1710 | TERMINAL, lug: same as E1707. | 593 0206 002 | |
| E1711 | TERMINAL, lug: same as E1402. | 593 0873 002 | |
| E1712 | TERMINAL, lug: same as E1402. | 593 0873 002 | |
| E1713 | KNOB: bar type; zinc alloy; used on 1/4 in. double flatted shaft w/ 6-32 screw; Electromatic p/n 504-501. | 281 0100 00 | 2Z5824.408 |
| I1701 | LAMP, glow: same as I701. | 262 0179 00 | 6Z6828-4 |
| I1702 | LAMP, glow: same as I701. | 262 0179 00 | 6Z6828-4 |
| J1701 | CONNECTOR, receptacle: same as J702. | 369 1014 00 | |
| J1702 | CONNECTOR, receptacle: same as J702. | 369 1014 00 | |
| R1701 | RESISTOR, variable: composition; 5000 ohms ±20%; 1 w; CTS type #90. | 044 0003 380 | |
| R1702 | RESISTOR, variable: composition; 1,500 ohms ±20%; 1 w; CTS type #90. | 044 3007 97 | |
| R1703 | RESISTOR, variable: composition; 1,500 ohms ±20%; 1 w; same as R1702. | 044 3007 97 | |
| S1701 | LIGHT, indicator: anodized aluminum; 23/32 in. dia by 1-63/64 in. lg o/a; mounts by one nut and lock washer; Hetherington type no. X559. | 044 2701 97 | |
| S1703 | SWITCH, rotary: 2 pole; 19 position; 1 sect; spring silver clips; coin silver blades; Oak type RK. | 044 0013 259 | |
| S1704 | SWITCH, rotary, wafer: 3 pole, 5 position; 2 section; spring silver clips, coin silver rotor blades; nonshorting type; Oak Mfg Co. type K. | 044 0011 259 | |
| S1705 | SWITCH, rotary wafer: same as S701. | 044 5813 97 | |
| S1706 | SWITCH, rotary: 2 pole, 3 position; 1 sect; spring silver clips coin silver rotor blades; Oak type K. | 044 5846 97 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| TB1701 | BOARD, terminal: c/o 1 term board, 1 term board mtg bracket hdwe; 1-1/32 in. w by 6-5/16 in. lg. | 593 0861 002 | |
| W1701 | CABLE ASSEMBLY, special purpose: control box; c/o two 10 pin connectors, lacing cord and wire. | 593 0860 00 | |
| XI1701 | LIGHT, indicator: same as S1701. | 044 2701 97 | |
| XI1702 | LIGHT, indicator: same as XI1401. | 044 0004 262 | |
| E1801 | CABLE, RF: c/o cable w/ ferrule ea end; 5/16 in. dia by 7 in. lg approx o/a; one 0.218 in. dia hole one end, one 0.270 in. dia hole other end. | 593 1047 002 | |
| E1802 | CABLE, RF: same as E1801. | 593 1047 002 | |
| E1803 | TERMINAL, lug: same as E1707. | 593 0206 002 | |
| E1804 | TERMINAL, lug: same as E1707. | 593 0206 002 | |
| J1801 | CONNECTOR, receptacle, electrical: same as J1601. | 044 2091 98 | |
| J1802 | CONNECTOR, plug, electrical: 4 rd, male cont; 5 amp, 500 vac; Amphenol p/n 100X2446. | 044 0001 372 | |
| TB1801 | BOARD, terminal: c/o plate, rod, insulator, terminal lugs, 2 brackets and hardware; 0.953 in. h by 2.375 in. w by 4.171 in. lg approx o/a dim. | 593 1054 003 | |
| TB1802 | BOARD, terminal: c/o bracket ea end, rod, plate, 10 insulators, 18 lug terminals, assorted hdwe; 0.953 in. w by 2.390 in. h by 4.062 in. lg o/a. | 593 1053 003 | |
| TB1803 | BOARD, terminal: c/o terminal board (A1808) and assorted hdwe; 1 in. w by 1.140 in. lg by 1.250 in. h o/a. | 593 1046 002 | |
| W1801 | CABLE ASSEMBLY, special purpose: shockmount; c/o one 37 socket connector (J1801) lacing cord and wire. | 593 1026 00 | |
| B1901 | MOTOR, DC: series-wound blower type; 26.4 vdc input voltage; 2.25 amp input current; continuous duty cycle; GE. | 044 0003 230 | |
| FL1901 | FILTER, radio interference: same as FL1501. | 044 0001 241 | |
| P1901 | CONNECTOR, receptacle, electrical: 4 rd, male cont; 5 amp, 500 vac; Amphenol type 100X2446-1. | 044 0002 372 | |
| W1901 | CABLE ASSEMBLY, power: c/o one connector (P1901) nylon lacing cord and wire. | 593 1079 003 | |
| P2001 | CONNECTOR, plug: 2 rd, female cont; 900 vac, rms, 1250 vdc; Amphenol #164-201-2S(19). | 044 0007 372 | |

2. Identification of Parts for Radio Set AN/VRC-24(XC-2) (Cont.)

| Ref symbol | Name of part and description | Collins Rad part/dwg No. | Sig Corps stock No. |
|---|---|---|---|
| P2051 | CONNECTOR, plug: 4 rd female cont; 900 vac rms, 1250 vdc; Amphenol 164-202-18S(19). | 044 0008 372 | |
| W2001 | CABLE ASSEMBLY, power: AC; c/o 2 pin connector (P2001), 12 ft cable w/ cable marker positioned approx in center. | 593 1512 003 | |
| W2026 | CABLE, special purpose: c/o marker positioned approx in ctr of 12 ft of 32 dc power cable, no. 1. | 593 1779 002 | |
| W2051 | CABLE ASSEMBLY, power: DC; c/o 4 pin connector (P2051), 12 ft cable w/ cable marker positioned approx in ctr. | 593 1513 003 | |
| J2151 | CONNECTOR, receptacle, electrical: same as J1604. | 044 0006 372 | |
| P2101 | CONNECTOR, plug: 30 rd, male cont; 900 vac rms, 1250 vdc; Amphenol #164-202-23P(25). | 044 0009 372 | |
| W2101 | CABLE ASSEMBLY, special purpose: control; c/o 30 pin connector (P2101), 20 ft cable w/ cable marker positioned approx in ctr. | 593 1514 004 | |
| W2126 | CABLE, special purpose: c/o control cable w/ marker positioned in approx c; 20 ft lg. | 593 1780 004 | |
| W2151 | CABLE ASSEMBLY, shockmount: c/o one 30 rd female cont connector, cable, connector cover, connector adapter, nylon lacing cord and hdwe; 30 in. lg excl connector. | 593 1886 004 | |
| P2201 | CONNECTOR, plug: electrical; same as P1401. | 044 2089 98 | |
| P2202 | CONNECTOR, receptacle: electrical; 18 rd female and 2 rd male high voltage cont; 1, 3, 4, 7, 12, 15, 16, 18 cont -10 amp 620 vdc; 8, 9, 10, 11 cont -10 amp 2025 vdc; 2, 5, 16, 13, 14, 17-15 amp 2025 vdc; A1, A2 cont -40 amp 1000 vdc; Cannonelec #DPD-B20HV2-33S-1L. | 044 0001 370 | |
| P2251 | CONNECTOR, plug: 37 rd, male cont; 700 vdc, 500 vac; 22 amps; straight shape; Amphenol. | 357 5056 00 | |
| P2252 | CONNECTOR, plug: 37 rd female cont, 500 vac, 700 vdc, 22 amp; straight shape; Amphenol. | 357 4003 00 | |
| W2201 | CABLE ASSEMBLY, power: AC power supply; c/o insulation, 8 cable bushings, wire, hdwe, 1 cable marker secured to approx ctr of 36 ft cable, terminated both ends w/ 20 pin connectors (P2201-P2202). | 593 1515 004 | |
| W2251 | CABLE ASSEMBLY, special purpose: Receiver/Trans; c/o insulation, 2 cable clamps, 1 cable marker secured to approx ctr of cable, terminated both ends w/ two 37 pin connectors, (P2251-P2252). | 593 1516 004 | |

Figure 104. Relay and Filter Unit, schematic diagram

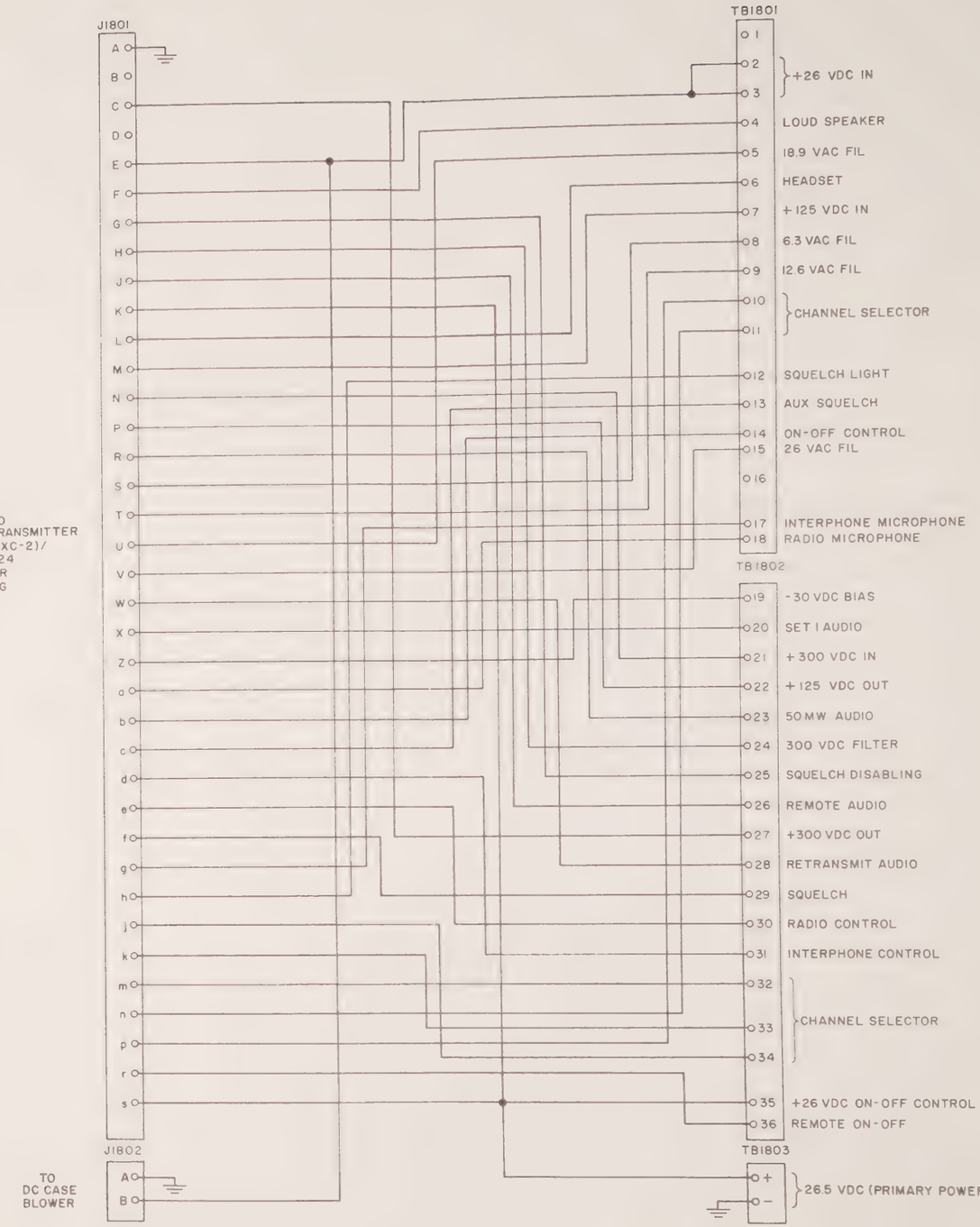
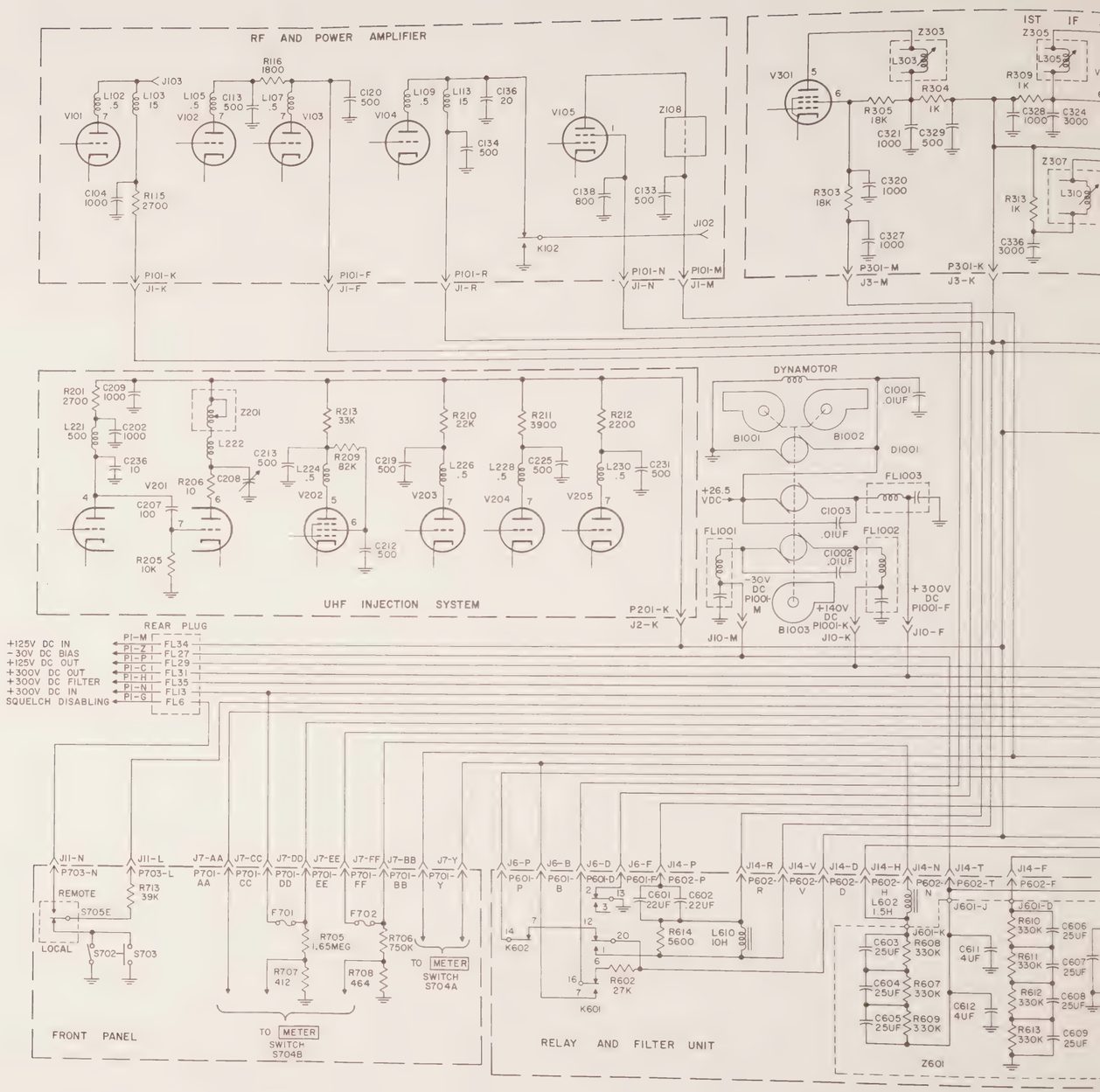



Figure 105. Mounting MT-1436(XC-2)/VRC-24, schematic diagram


RF AND POWER AMPLIFIER
IST IF
UHF INJECTION SYSTEM
DYNAMOTOR
REAR PLUG
+125V DC IN
-30V DC BIAS
+125V DC OUT
+300V DC OUT
+300V DC FILTER
+300V DC IN
SQUELCH DISABLING
FRONT PANEL
RELAY AND FILTER UNIT
REMOTE
LOCAL
TO METER SWITCH S704A
TO METER SWITCH S704B
+26.5 VDC
-30V DC P1001-M
+140V DC P1001-K
+300V DC P1001-F

PLIFIER 20.0 TO 29.9MC

V303 R312 330K C318 2000

V305 R315 1K C330 3000

C342 3000 R314 100K L309 12 R316 330K V304

C331 1000 C334 500 C341 3000

P304

J401 L401 L402 Z401

R401 56K C406 .02UF C420 1000

K401 R409 10K R408 6200 R409 15K V401 C416 1000

R410 10K C418 1000 C419 1000

2D IF AMPLIFIER 3.0 TO 3.9MC

P301-H J3-H

P401-L J4-L

P401-K J4-K

J5-K P501-K

R514 2200

R504 18K L501 5MH R503 47K V501

R508 18K L502 5MH R507 47K V502

C527 1UF R512 2200 C519 .1UF T501 C510 1UF R511 47K R528 22K V503

R527 12K V504 C516 .1UF

C504 .02UF C507 .02UF C505 .02UF C508 .02UF C506 .02UF C509 .02UF

CR501 R520 560K

J509-4 P509-4

P501-J J5-J

3D IF AMPLIFIER 500KC

K1 K2 R3 800

J8-v P801-v

J8-p P801-p

K801 C805 510 V801 R811 82K R812 470K R809 390 R810 5600

J8-t P801-t

J8-r P801-r

K802

J8-X P80-X

P801-L J8-L R813 82K R816 1.8 MEG

J8-T P801-T R801 27K TO SQUELCH CIRCUIT R837 39K

V803 R824 68K C812 .22UF R823 120K R822 120K V804 T801

V805 V807 V806 V808 T802 TO LIMITER R831 25K R830 56K C815 4 UF R832 22K

J8-k P801-k

J8-f P801-f

J8-w P801-w

J8-a P801-a R838 1.2

J8-b P801-b R839 .182

J8-s P801-s

AUDIO AMPLIFIER AND MODULATOR

R603 400 R604 400 R605 50 R606 560

J15-C J15-J J15-V J15-X J15-B J15-E J15-T J15-P

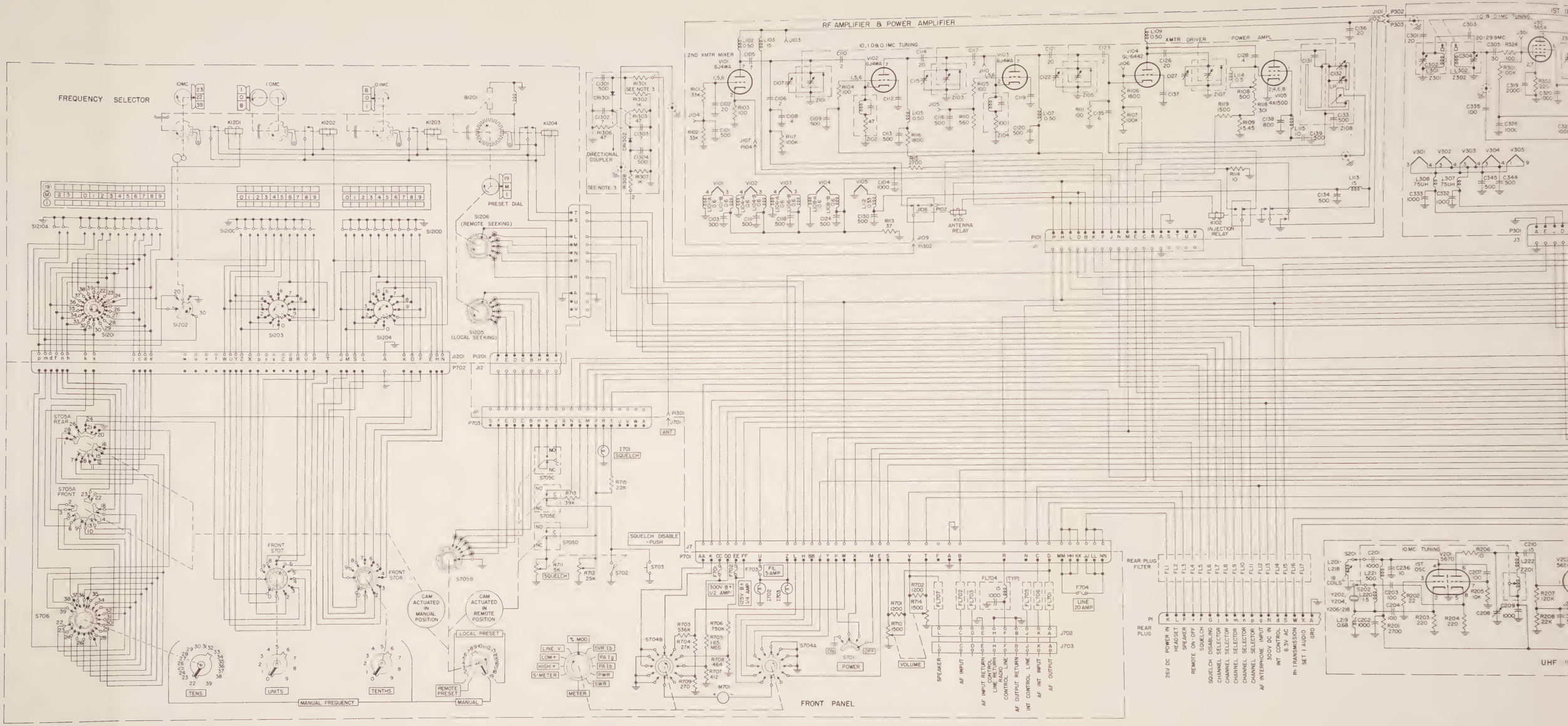
P2-C P2-J P2-V P2-X P2-B P2-E P2-T P2-P

TO RADIO AND INTERPHONE MICRO-PHONE CIRCUITS

P602-X J14-X

P602-J J14-J

Figure 106. B+ and Bias Distribution, schematic diagram


FREQUENCY SELECTOR
10MC
1 0MC
.01MC
K1201
K1202
K1203
K1204
B1201
PRESET DIAL
S1206
(REMOTE SEEKING)
S1205
(LOCAL SEEKING)
S1210A
S1210C
S1210D
S1201
S1202
S1203
S1204
J1201
P1201
P702
J12
J11
P703
P1301
J701
ANT
S705A
REAR
S705A
FRONT
S705C
S705E
S705D
S705B
S706
FRONT
S707
FRONT
S708
I701
SQUELCH
R715
22K
R713
39K
R711
5K
SQUELCH
R712
25K
SQUELCH DISABLE
-PUSH
S702
S703
CAM
ACTUATED
IN
MANUAL
POSITION
CAM
ACTUATED
IN
REMOTE
POSITION
LOCAL PRESET
REMOTE
PRESET
MANUAL
TENS
UNITS
TENTHS
MANUAL FREQUENCY
% MOD
LINE V
LOW +
HIGH +
S-METER
OVR Ib
PA Ig
PA Ib
PWR
SWR
METER
S704B
R703
536K
R704
27K
R709
270
R706
750K
R705
1.65
MEG
R708
464
R707
412
M701
S704A
S701
ON
OFF
POWER
VOLUME
FRONT PANEL
DIRECTIONAL
COUPLER
SEE NOTE 3
CR1301
CR1302
CR1303
CR1304
R1301
R1302
R1303
R1304
R1305
R1306
R1307
R1308
RF AMPLIFIER & POWER AMPLIFIER
2ND XMTR MIXER
V101
6J4WA
10, 10 & 0 MC TUNING
V102
6J4WA
V103
6J4WA
V104
GL-6442
XMTR DRIVER
POWER AMPL
V105
6146
4X150D
J101
P302
J102
P303
P101
J1
J107
P104
J108
P102
ANTENNA
RELAY
K101
INJECTION
RELAY
J109
P1302
L113
C134
500
C136
20
C301
20
C303
20-29 MC
C304
C305
R324
100
R301
100K
C319
2000
C335
100
C326
100K
C320
1000
C332
1000
C333
1000
C345
500
C344
500
L308
75UH
L307
75UH
V301
V302
V303
V304
V305
P301
J3
1ST
5654
2.7
REAR PLUG
FILTER
FL1
FL2
FL3
FL4
FL5
FL6
FL7
FL8
FL9
FL10
FL11
FL12
FL13
FL14
FL15
FL16
FL17
F704
LINE
20 AMP
FL704
(TYP)
FL705
FL706
FL701
J702
J703
R702
1200
R714
1500
R710
500
FL107
FL702
FL103
SPEAKER
AF INPUT
AF INPUT RETURN
LINE RETURN
RADIO CONTROL LINE
AF OUTPUT RETURN
INT CONTROL LINE
AF INT. INPUT
AF OUTPUT
F703
FIL
5 AMP
300V B+
1/2 AMP
25V B+
1/4 AMP
1702
1703
J704
P1
REAR
PLUG
26V DC POWER IN
HEADSET
SPEAKER
REMOTE ON-OFF
SQUELCH
SQUELCH DISABLING
CHANNEL SELECTOR
AF INTERRUPTION
100V DC IN
INT CONTROL
6.3V AC
RF TRANSMISSION
SET 1 AUDIO
GRD
10 MC TUNING
S201
L201
L218
18
COILS
Y202,
Y204,
Y206
Y208
S202
L220
L219
0.68
C202
1000
C201
1000
L221
500
C236
10
V201
5670
IST
OSC
C207
100
C203
100
C204
100
R202
22
R203
220
R204
220
R205
10K
R206
10
R201
2700
C208
C209
1000
C210
15
L222
220
R207
120K
R208
22K
UHF

AMPLIFIER

2ND REC MIXER

IST TRANS MIXER

V305A 1/2 5670 2ND OSC 1/2 V305B 1/2 5670

MC TUNING

Y301 Y310 17-26MC, 10 XTALS

0.1MC TUNING

2ND IF AMPLIFIER

500KC IF FILTER

3RD REC MIXER

3RD OSC

3RD IF AMPLIFIER 500KC

AUDIO AMPL

DETECTOR

AVC GATE

DYNAMOTOR

10MC TUNING

ON SYSTEM

RELAY AND FILTER UNIT

(CONNECT FOR OPERATION WITH AC - DC PWR SUPPLY)

P2 (REVERSED)

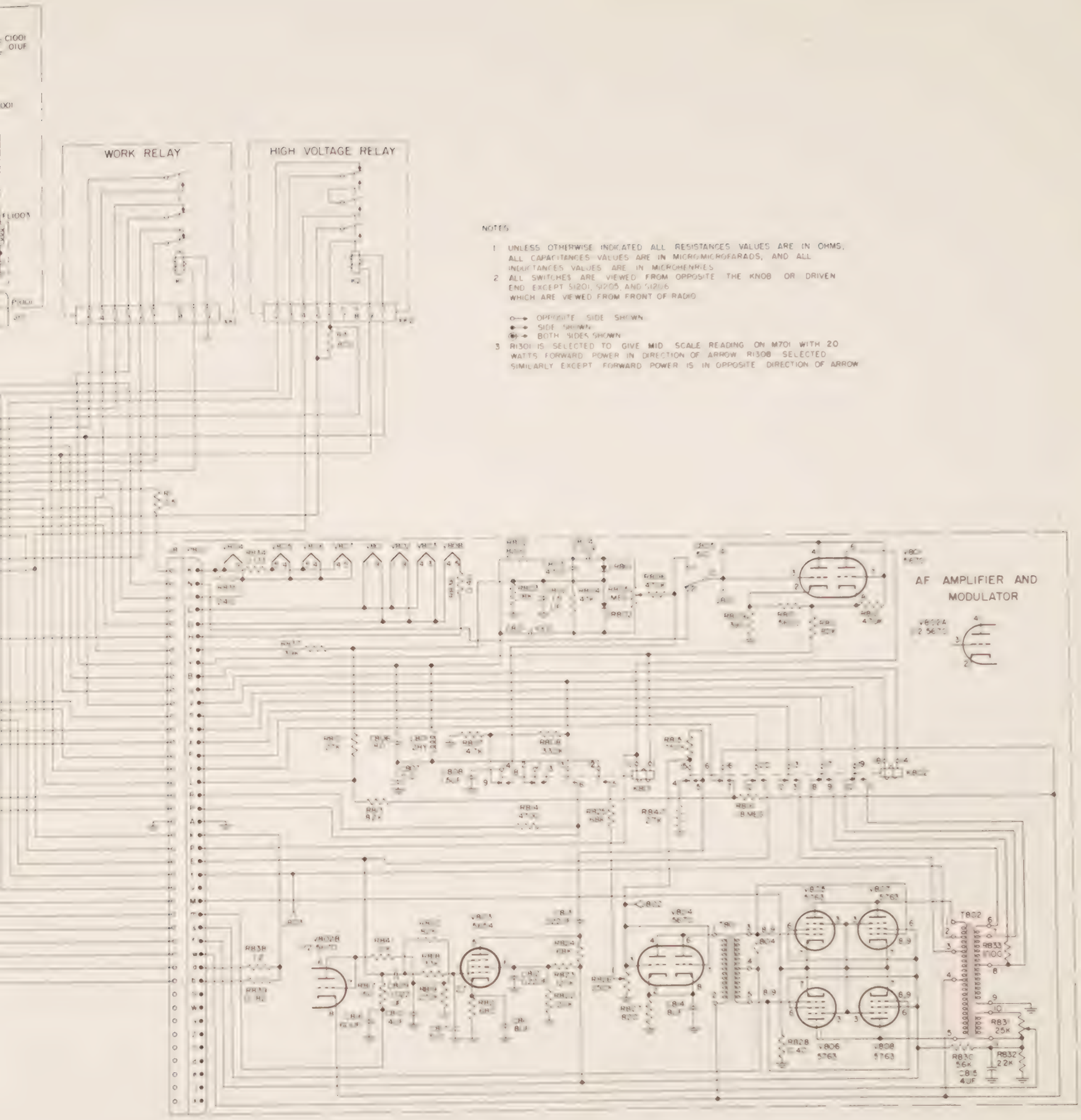
P2 ONLY

[CONNECT FOR OPERATION WITHOUT AC-DC PWR SUPPLY-DC]

REAR PLUG

ON-OFF CONTROL
RADIO MUTE INPUT
AUX SQUELCH
SQUELCH LIGHT
183V AF
12.6V AC
26V DC IN
26V AC FIL
50MW AUDIO
-30V BIAS
REMOTE AUDIO
+125V DC OUT
RADIO CONTROL
+300V DC OUT
115V AC
115V AC
+125V DC IN
26V ON-OFF CONTROL
300V DC FILTER

POWER RELAY




NOTES

1. UNLESS OTHERWISE INDICATED ALL RESISTANCES VALUES ARE IN OHMS, ALL CAPACITANCES VALUES ARE IN MICRO MICROFARADS, AND ALL INDUCTANCES VALUES ARE IN MICROHENRIES
2. ALL SWITCHES ARE VIEWED FROM OPPOSITE THE KNOB OR DRIVEN END EXCEPT S1201, S1205 AND S1206 WHICH ARE VIEWED FROM FRONT OF RADIO

   o—• OPPOSITE SIDE SHOWN
   •—• SIDE SHOWN
   ◉—• BOTH SIDES SHOWN
3. R1301 IS SELECTED TO GIVE MID SCALE READING ON M701 WITH 20 WATTS FORWARD POWER IN DIRECTION OF ARROW. R1308 SELECTED SIMILARLY EXCEPT FORWARD POWER IS IN OPPOSITE DIRECTION OF ARROW

Figure 107. Receiver-Transmitter RT-323(XC-2)/VRC-24, schematic diagram

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